



Amateur Radio

VOL 54, No 12, DECEMBER 1986

JOURNAL OF THE WIRELESS INSTITUTE OF AUSTRALIA



SQUARE WAVE GENERATOR — Part 2
REMEMBRANCE DAY CONTEST — 1986 Results
ANNUAL AR INDEX
A LOOK AT LC OSCILLATORS

ANDREWS COMMUNICATION SYSTEMS

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Photograph courtesy Peter Koon



Jenny VK5ANW, President of the VK5 Division, presents Marion Centenary Award Certificate No 1 to Mrs June Appleby MR during the Centenary of the District of Marion. Due to space limitations in this issue, a full feature spread of the event will appear in January.

Special Features

Electricity	44
Over the Wall — Packet Radio in the US	21
Annual Index for AR — 1986	22

Technical Features

A Square Wave Generator Part 2 by Ken Kimberley VK2PY	16
An Oblique View of LC Oscillators by Don Law VK2AIL	15
More about a Multiband End-Fed Inverted-Vee Aerial System Reprinted from Radio ZS	12

Regular Features

Advertisers' Index	64
ALARA	45
AMSAT Australia	40
AR Showcase	
— Easy RTTY on a Computer	54
— Teflock Connector	54

— Yaesu Transceivers — FT23R/73R; 727R & 767GX	54
Awards	
— Australian Awards Update	50
— WIA 75 Awards	50
Club Corner	58
Contests	
— ARRL 10 m CW Contest — Rules ...	39
— ARRL 160 m CW Contest — Rules ...	39
— Golden Anniversary Commonwealth — Rules	38
— Remembrance Day — 1986 Results ...	36
— YL-OM Midwinter Contest — Rules ...	45
— YL-OM Contest — Rules	45
Editor's Comment — An Australian Amateur Handbook	3
Education Notes	46
Electro-Magnetic Compatibility Report	52
Equipment Review — Icom IC-12AT 1296 MHz Transceiver	20
Five-Figure Wave	59
Forward Bias	58
Hamads	63
How's DX	29
Ionospheric Predictions	63
Intruder Watch	47
Listening Around	44
Magazine Review	57
Main QSP — Amateur Radio — the technological pursuit of radio communications by individuals	3
Obituaries — Stewart Smith, John Ryan, Maurie Pfeffer & Bill Douglas	62
Over to you! — members have their say	60
Pounding Brass	51
QSP	14, 15, 28, 46, 47, 50, 51, 57
Radio Amateur Old Timers Club	48
Silent Keys — VK4KA, VK3ABE, VK3PB, VK3YSG & VK2AJQ	63
Solar Geophysical Summary	63

Spotlight on SWLING	47
Technical Mailbox DC Polarisation Protection for Mobile Flgs by Bob Geeves VK7KZ	50
Thumbnail Sketches	
— Harry Angel VK4HA	42
— Roy Kerr VK4DK	42
VHF UHF — an expanding world	26
VK3 Mini Bulletin	58
VK3 WIA Notes	57
VK4 WIA Notes	58

Now is the time to start "dropping hints" for those last minute Christmas Presents. To aid your selection, many advertisers have taken multiple pages to show what is available.

As is usual in the December issue, the Annual Index is featured on page 22. This index covers the feature articles which have appeared during the year.

Ian VK5QX, the Federal Contest Manager, has compiled the results of the 1986 Remembrance Day Contest (see page 36). Congratulations to the Queensland Division, this year's overall winner.

Also in the Contest Column is the rules for the Commonwealth Contest, conducted by the RSGB over the weekend March 14-15. As this is the 50th year of the contest being conducted there will be special awards presented.

Seasons Greetings to all readers.

DEADLINE

All copy for inclusion in the February 1987 issue of Amateur Radio, including regular columns and Hamads, must arrive at PO Box 300, Caulfield South, Vic. 3162, at the latest, by 9am, January 2, 1987.

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Material should be sent direct to PO Box 300, Caulfield South, Vic. 3162, by the 20th day of the second month preceding publication. Note: Some months are a few days earlier due to the way the days fall. Watch the space before the index for deadline dates. Phone: (03) 528 5962.

HAMADS should be sent direct to the same address, by the same date.

Acknowledgment may not be made unless specifically requested. All important items should be sent by Certified Mail. The Editor reserves the right to edit all material, including Letters to the Editor and Hamads, and reserves the right to refuse acceptance

of any material, without specifying a reason.

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It is impossible for us to ensure the advertisements submitted for publication comply with the Trade Practices Act 1974. Therefore editors and advertising agents will appreciate the absolute need for themselves to ensure that the provisions of the Act are complied with strictly.

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Editor's Comment

AN AUSTRALIAN AMATEUR HANDBOOK?

Many of you will by now have obtained your copy of the 1986-87 Call Book. Some of you will be disappointed at its reduced size this year, although regrettably the price is still the same as last year. As has been announced on the Divisional broadcasts, this is caused by the continually rising cost of printing and production, largely due to the diminishing value of the Australian dollar. We have cut costs this time by eliminating much of the technical material which last year comprised half the book.

Some of this material is still useful, but some of it becomes obsolete as time progresses and conditions and techniques change. Rather than repeat each year the more enduring material, we have been discussing for months how to meet your needs without this expensive duplication. Closely related to this is how best we can satisfy the obvious need for an Australian technical handbook as mentioned last month. Perhaps we can combine these related needs and provide a solution at lower cost to all of us than trying to tackle each problem separately.

There would seem to be three possibilities:

- A thin Call Book (like the present issue) containing as well as the annually updated call signs a minimum of other material;
- A thicker volume (like last year) containing about 50 percent call signs and 50 percent other data, much of it unchanged over two or three years;
- An even thicker production which also provides some handbook-type technical material in the form of theory and construction articles.

Obviously these three alternatives are in increasing order of cost. Option 'c' will cost considerably more than 'a'. How much? We can't cost it until we know the market. From your viewpoint it may well be worth it. To go a stage further, rather than expect you to have to hunt through several years' call books to find a particular item, could we perhaps provide the data on detachable pages arranged for filing in a binder? Updates and additions would accompany each year's Call Book, including an updated

index. The VK Amateur Handbook would become a living volume, growing larger each year!

As is so often the case, we can only do for you what you tell us you want. So this issue of *Amateur Radio* is accompanied by a small questionnaire for you to tell us what you think of the Call Book plus Handbook idea. Fill it in and send it back with your subscription renewal. We promise that your reply will be separately processed from your renewal and not associated with your name and call sign unless you want it that way. You want complete anonymity? Send it back in another envelope, if you think it's worth 36 cents!

Another year now has only a few weeks to go. I hope you have all found 1986 better than it might have been. May we (the Publications Committee, the Executive, Betken and I) wish you all a very Merry Christmas and a happy and prosperous New Year.

Bill Rice VK3ABP
Editor



Main QSP



AMATEUR RADIO — the technological pursuit of radio communications by individuals

Radio communications, as a field of technology, has made tremendous advances since the first radio signals were transmitted, which was in very recent times when we consider the history of mankind.

We, as amateurs, have been actively involved in these advances. Amateur radio gives the opportunity for an individual to participate in the many aspects of radio communications — an opportunity that must never be denied.

Although the mysticism of the early achievements of radio amateurs has long since passed and the amateur is no longer considered the local wizard!

There can still be a sense of achievement and self-esteem, in mastering a new technique, proving a theory or finding an alternative simpler way to do things.

With the diverse nature of radio communications there are now many different aspects that attract individuals to amateur radio.

It is also important that the opportunity is always available for anyone to progress as an amateur from the simplest basic aspects of radio communications through to the most sophisticated, finding their own desired level of involvement as they go.

Amateur radio, while realising the technical nature of the pursuits, must not be elitist, entry must be accessible, but on the converse, the pursuit of esoteric techniques must not be inhibited.

To this end, the current trend of self-regulation is to be welcomed.

Of course, some regulation, albeit self-regulation, is necessary to allow for the harmonious co-existence of the many different enthusiasms of the radio amateur.

In conclusion, if the amateur service, which is the pursuit of the techniques of radio communications purely out of self-interest, is to maintain viability, it has to keep moving with the time to make it attractive to the newcomer to attain his or her own goal.

I now take this opportunity of wishing you a Happy Christmas and a Prosperous New Year.

David Wardlaw VK3ADW
Federal President

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TS-440S HF TRANSCEIVER \$1585



The TS-440S is an HF transceiver designed for SSB, CW, AM, FM and AFSK modes of operation on all Amateur bands including the new WARC bands. It is the ultimate in compact size with the automatic antenna tuner built-in and featuring a highly efficient final amplifier cooling system. It incorporates a 100 KHz to 30 MHz general coverage receiver having superior dynamic range. Advanced digital technology controls the various functions, including dual digital VFOs, 100 memory channels, keyboard frequency selection, memory and programmable band scan, and RIT plus XIT. Additional operating features include full break-in CW (switchable to semi break-in), built-in automatic antenna tuner, IF shift, notch filter, IF filter selection, RF attenuator, speech processor, and other features for ease of operation and added versatility.



TS-940S HF TRANSCEIVER \$2950

The TS-940S is a competition class HF transceiver having every conceivable feature, and is designed for SSB, CW, AM, FM and FSK modes of operation on all 160 through 10 meter Amateur bands, including the new WARC bands. It incorporates an outstanding 150 KHz to 30 MHz general coverage receiver having a superior dynamic range (102 dB typical on 20 meters, 50 kHz spacing, 500 Hz CW bandwidth).

Engineered with the serious DX'er/contest operator in mind, the TS-940S features a wide range of innovative interference rejection circuits, including SSB IF slope tuning, CW VBT (Variable bandwidth tuning), IF notch filter, AF tune circuit, Narrow/Wide filter selection, CW variable pitch control, dual-mode noise blanker, and RIT plus XIT.

TL-922 HF LINEAR AMPLIFIER

The TL-922 is a band linear amplifier designed to provide maximum legal performance, utilizing two 3-500Z high performance transmitting tubes. Incorporates class AB₂ round-grid amplifier circuit. Excellent IMD (intermodulation distortion characteristics).

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2M FM MOBILE TRANSCEIVER

The KENWOOD TM-201B 2-m FM mobile transceiver is designed to be the ultimate in compact size and lightweight, allowing maximum flexibility in automotive installations. New microprocessor controlled operating features, improved receive and transmit circuitry, a powerful 50 watts of RF output.

Ga As Fet RF Amp.

2 METRES AT
A BUDGET

\$495



**FC-10 \$20
ONLY**

Remote frequency controller only \$20 each when sold with each TM-201B during period between Nov. '86 and Jan. '87.



TM-2550A

TM-2570A

2M FM MOBILE TRANSCEIVERS

50 WATTS

\$650

70 WATTS

\$695

Ga As Fet RF Amp.

The KENWOOD TM-2550A/TM-2570A 2 meter FM Mobile transceivers have been designed to satisfy the needs of the most demanding 2m mobile operator. A wide range of innovative features have been incorporated in the basic design, including a large, new, easy-to-read LCD display, 23 multi-function memory channels for storing frequency, offset, telephone number and auto-offset.

Compare the TM-2570A with other brands and you will find our 70 watts is the same price as competitors 50 watt models - i.e. 20 watts more for the same price.

TW-4100A

UHF/VHF FM DUAL BAND MOBILE TRANSCEIVER

144-148 Mhz - 420-450* Mhz
2M 50 Watts - 70cm 25 Watts
FULL DUPLEX BETWEEN BANDS
10 MEMORIES

*Adjustable

NEW MODEL

THE INTRODUCTION OF THE TW-4100A
HAS BEEN DELAYED UNTIL FURTHER
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\$875

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R-5000 COMMUNICATIONS RECEIVER

The R-5000 is a new competition grade communications receiver which incorporates every conceivable operating feature. Designed for all modes of reception (SSB, CW, AM, FM, FSK), the R-5000 covers the frequency range from 100 kHz to 30 MHz, and with the addition of the optional VC-20 VHF converter, will also cover the 108 to 174 MHz range, again with all mode reception. The R-5000 has been designed with high performance in mind, and has an excellent dynamic range, together with carefully chosen operating facilities to match today's conditions. Microprocessor control is used for main functions, including dual digital VFO's, 100 memory channels, memory scrolling, memory and programmable band scan, and many other facilities.



**CAPTURE
THE WORLD**

ONLY

\$1075

FEATURES

Coverage is 100 kHz to 30 MHz in 30 bands, with an additional range from 108 to 173 MHz using the optional VC-20 VHF converter.

Advanced microprocessor control allows frequency, band and mode data to be stored, recalled, and displayed, even in the VHF band of the VC-20.

The RF circuits of the R-5000 have been designed to give a high dynamic range, and with the 500 Hz bandwidth selected (YK-88C option), the intermodulation free dynamic range is 102 dB, with a third order intercept point of +14 dBm, and a noise floor of -138 dBm.

High stability frequency control.

The reference oscillator which determines the frequency stability and readout accuracy of the R-5000 is accurate to \pm or \sim 10 ppm within a temperature range of -10 to $+50$ degrees Celsius.

10 Hz step dual digital VFOs.

Built in dual VFOs operate independently of each other, and allow split frequency and split mode operation. The frequency steps are basically 10 Hz, giving that "True VFO" feel when tuning. The frequency steps are changed to 1 kHz in AM mode, and 5 kHz in FM mode.

Provision is made for the connection of both high and low impedance antenna systems.

Superb Interference Reduction.

Selectivity is enhanced by the use of dual crystal IF filters for SSB, and further features include IF shift and tunable notch filters. The IF filter selection system is fully flexible, in the same manner as the TS-440S transceiver, and offers automatic selection by mode, or manual selection according to the operator's requirements.

A dual mode noise blanker system deals effectively with both impulse noise as well as the "woodpecker".

Keyboard Frequency Selection

Frequencies can be entered using direct keyboard control, and a frequency lock switch prevents accidental frequency changes from occurring.

100 Memory Channels Capability

100 memories are provided, which store frequency, mode, and which antenna has been selected. Memory information can be scrolled to review contents of any memory channel.

Memory Scan and Programmable Band Scan.

Further memory facilities include memory scanning with programmable memory lockout, and programmable band scanning with centre stop for accurate on-channel tuning.

Plus a full list of other desirable features:

- Dual 24 hour clocks with timer
- Optional VS-1 voice synthesiser for frequency announcement
- Optional battery by personal computer using the IF-232C interface
- Lithium battery backup of memory contents
- Built in AC power supply and option to use the receiver on 13.8 volt DC supplies
- High quality internal loudspeaker
- AGC time constant switchable fast/slow
- Switchable RF input attenuator (0 to 30 dB in 10 dB steps).

To summarise: the R-5000 from KENWOOD offers the operator a top performance communications receiver of the very highest quality, with all the features and functions which the discriminating user could demand.

With the R-5000, KENWOOD gives the dedicated listener a receiver which will match the performance of the very best transceivers available today.

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TS-711A 2M

TS-811A 70 CM

ALL MODE TRANSCEIVERS



The TS-711A 2-m and the TS-811A 70-cm all-mode transceivers feature enhanced ease of operation through the use of new microprocessor technology that permits the incorporation of the widest range of innovative features in a very compact package. These features include KENWOOD's new, exclusive DCS (Digital Code Squelch), 10-Hz step dual digital VFO's, a new, multi-function fluorescent tube digital display, 40 multi-function memory channels, programmable band scan, memory scan, mode scan, auto mode function, "quick-step" main tuning dial, IF shift, speech processor, all-mode squelch, noise blanker and an easy-to-operate front panel design.

TS-711A **\$1290**

TS-811A **\$1335**



TS-670 ALL MODE "QUAD-BANDER" TRANSCEIVER

FITTED WITH GC-10

GENERAL
COVERAGE
RECEIVER

XMAS SPECIAL
\$880
VERY
LIMITED STOCKS

The TS-670 "Quad-Bander" is a unique all-mode transceiver that covers the 6 meter VHF band, and the 10,15 and 40 meter HF bands, combining the ultimate in compact size with advanced circuit design and performance. This outstanding radio may be purchased with an optional general coverage receiver that tunes continuously from 500-KHz to 30-MHz. Key features include dual digital VFO's, 80 memory channels, memory scan, programmable band scan, frequency direct key selection, a two-colour fluorescent tube display with function indicator LED's, IF shift and squelch.

TR-751A

2M ALL-MODE TRANSCEIVER



The TR-751A all-mode, 2-m transceiver delivers superior performance and "All Mode Mobility". Packed with all of the most often needed features including auto-mode selection, dual digital VFO's, 10 memories plus "COM" channel, programmable CTCSS tone, various scan functions, all-mode squelch, noise blanker, RIT, DCL (Digital Channel Link) and easy-to-operate front panel layout. And, designed with the latest state-of-the-art technology, this compact rig is the one to choose for VHF stations on-the-go.

NOW ONLY

\$750

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ALL KENWOOD NEW GENERATION EQUIPMENT FEATURES DCS CAPABILITY:

PLUS TM-211A
TM-411A
TM-2550A
TM-2570A
TW-4100A
TS-711A
TS-811A
TR-2600A

DIGITAL CODE SQUELCH

TRIO-KENWOOD's new DCS "Digital Code Squelch" is a revolutionary signaling concept for Amateur Radio that utilizes current state-of-the-art technology. This new technology is a major feature of all Kenwood new generation equipment. The DCS should not be confused with conventional CTCSS (Continuous Tone Coded Squelch System). DCS uses a 5 digit, digitally coded data string, to open squelch on a receiver that has been programmed to accept this same specific code group. By utilizing a 5 digit code group the operator may choose from 100,000 possible combinations, thus providing increased security. In addition to the 5 digit "access code" the DCS also transmits the operators call sign, in decimal ASCII code. Call signs of a maximum of 6 digits may be entered. By using the optional CD-10 Call Sign Display, the operator may store incoming call signs, for later review or logging.

100,000 different 5 digit code groups.

Convenient keyboard entry of the "access code" is possible with all models equipped with the DCS.

Capable of monitoring multiple access codes.

The DCS codes, and call sign data, are stored in separate memory locations within the host unit. This allows the operator to monitor several access code groups at one time. Clubs and nets will find this function useful, as will operators who wish to listen for more than one group at a time.

CD-10

The CD-10 store the call sign of calling station in its memory and displays it on an LCD display. Call signs of up to 20 of the most recently calling stations are stored, allowing the operator to quickly check for and return any call.

DCS Decoding. Decodes the digital ASCII call sign data that is a portion of the DCS data string.

Automatic Call Sign Transmission.

A 5 digit Amateur "Call Sign" is entered into the DCS memory using decimal ASCII coding, by use of the front panel keyboard. This call sign is then transmitted in conjunction with the DCS data string each time the PTT switch is depressed or released. By using the optional CD-10 Call Sign Display the operator can automatically store up to 20 different call signs. This feature is useful for unattended monitoring of the radio. Upon return to the station the operator can review the CD-10 memory to determine who tried to contact him during his absence. This function is also useful for logging purposes.

CD-10



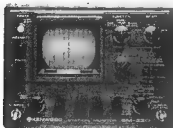
CALL SIGN DISPLAY SYSTEM \$160

INCLUDES FREE
AC ADAPTOR

PC-1A

PHONE PATCH CONTROLLER

\$96



SM-220 STATION MONITOR

VALUE AT

\$555

The SM-220 station monitor features a built-in two-tone generator for a wide variety of waveform-observing capabilities.

An optional feature is a unique panoramic display capability. The SM-220 provides efficient station operation as it monitors transmitted waveforms, and it also serves as a high-sensitivity, wide-frequency-range oscilloscope for various adjustments and experiments.

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SW-100 A/B
\$75

SWR/POWER METER

Compact and lightweight SWR/POWER/VOLT meters cover 1.8 - 150 MHz (SW-100A), 140 - 450 MHz (SW-100B) in range of 150W full scale for mobile use



SW-200 A/B **\$150**
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SWR/POWER METER (Supplied With A Coupler).

SW-200A supplied with SWC-1, SW-200B supplied with SWC-2, SW-2000 supplied with SWC-3. Selectable peak-reading/RMS. SWR/POWER meters cover 1.8 - 150 MHz (SW-200A), 140 - 450 MHz (SW-200B), 1.8 - 54 MHz (SW-2000) in range of 0 - 200/200W (SW-200A/B), 0 - 200/2000W (SW-2000) full scale to base station use



ANTENNA TUNER
The AT 130 is a compact and lightweight antenna tuner designed for base or mobile use. It consists of an antenna coupler, an SWR meter and an antenna switch

AT-130
\$180



MC-60A **\$120**

MC-60A (8 Pin)
Deluxe Desk-Top Microphone With Built-In Pre-Amplifier



MC-80 **\$70**

MC-80 (8 Pin)
Desk-Top UP/DOWN Microphone With Built-In Pre-Amplifier



MC-85 **\$140**

MC-85 (8 Pin)
Multi-Function Desk-Top UP/DOWN Microphone With Built-In Audio Level Compensation.

RF DUMMY LOAD (20W continuous)

- Impedance 50Ω • Frequency range and VSWR DC-500 MHz, 1:1
- Input power 20W (continuous) 50W (intermittent - 1 minute ON, 3 minutes OFF) • Maximum temperature: 200°C (329°F) • Cooling: Natural air flow
- Connector: I type connector

LIGHTNING & STATIC PROTECTOR

AL-1 Handles 100W output at 50Ω with SO-239 Connector
AL-2 Handles 1 kW output at 50Ω with SO-239 Connector

LOW-PASS FILTER

- Cutoff frequency: 30 MHz
- Attenuation: More than 90 dB between 90 and 300 MHz • Durability against input power: 1 kW PEP • Insertion loss: Less than 0.5 dB at 30 MHz
- Input/output impedance: 50Ω

MA-5

80-m/40-m/20-m/15-m/10-m
Five Band Helical-type HF Mobile Antenna

The MA-5 is a multi-purpose HF antenna for mobile operation

MA-4000 (50Ω)

2-m/70-cm Dual Band Mobile Antenna with Duplexer

The dual bander's ability of the TW-4000A can be brought into full operation by combining the MA-4000

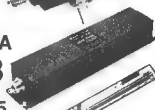
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MA-4000
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MORE ABOUT A MULTIBAND END-FED INVERTED-VEE AERIAL SYSTEM

Written by Collin Dickman ZS6U

Reprinted from RADIO ZS, January 1978 and contributed to AR by James Crichton VK2XFC

The aim of this article is to provide a summary of the article published last month and to expand on some of the details therein.

By using a wire two wavelengths long at 10 metres, a very simple band-switched L-network matching unit can be used to preselect 10, 15, 20, 40 and 80 metres, quickly and reliably.

The system is preadjusted to provide a purely resistive load to the transmitter. Unlike other multiband systems there is no reactance present to cause loading difficulties accompanied by RF in the shack, BCI and like problems.

There are no transmission line losses, consequently all of the RF from the transmitter is radiated by the antenna.

By using lobe alignment, the antenna yields useful directivity and gain over a dipole or vertical, especially at the higher frequencies.

On reception, the antenna has a greater capture area at the higher frequencies than a dipole or vertical. In addition, the L-network provides a degree of selectivity. The two together result in a stronger, cleaner signal.

The two-wavelength version requires less than 14 metres of ground plane.

The length of the wire is obtained from the formula:

$$L \text{ metres} = \frac{984 (N - 0.0125)}{f \text{ (MHz)}} \times 0.3048$$

N = Number of wavelengths at the highest frequency.

For example, for two-wavelengths at 28.6 MHz, $L = 20.84$ metres. This is the overall length of the wire right up to the antenna terminal of the L-network.

The circuit diagrams for L-networks for two and four wavelength antennas together with coil taps and dimensions are shown in Figures 4 and 5. The preadjustment procedure is to insert a SWR bridge in the coax between the rig and the L-network, switch it to the reflected power position and, using sufficient carrier on 40, 20, 15 and 10 metres in turn, adjust the capacitor C for the lowest dip in the meter reading. With the two-wavelength system there is no tuning on 80 metres and capacitor C is merely set to minimum capacity. With the four-wavelength system, the adjustment procedure for 80 is the same as for the other bands. Mark each band setting of capacitor C on its dial so that band changing merely involves switching the bandswitch and turning C to the calibrated mark for that band before loading up the rig.

COIL DIAM mm	COIL LENGTH mm	WIRE DIAM mm
35	38	0.95
38	47	1.17
41.3	56	1.4
44.5	66	1.65
47.6	77	1.9
50.8	88	2.2

Table Figure 4.

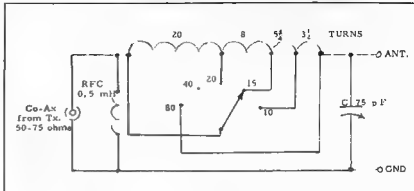


Figure 4.

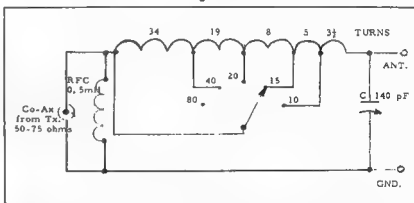


Figure 5.

For greater detail, readers are referred to the previous article.

MORE ABOUT WIRE CONFIGURATIONS

Having stretched and cut your measured piece of wire, you will be looking for some way to string it up. The simplest way may be to use an L-shape or you may need to take the wire in various directions to get it in the clear. Although all the power you put into this antenna will be radiated irrespective of the wire shape, random shapes will not do full justice to the fine performance potential of the antenna. There are certain preferred configurations which will put the signal where it will do the most good. Be assured that the extra effort will be well worthwhile.

The principle of lobe alignment has been used in the three recommended configurations shown in geometric form in Figures 1, 2, and 3 to achieve useful gain at low wave angles. Using the formula and example above, two wavelengths = 20.84 metres and four wavelengths = 41.82 metres.

COIL DIAM mm	COIL LENGTH mm	WIRE DIAM mm
35	84.8	0.95
38	77.9	1.16
41.3	83.3	1.37
44.5	109.5	1.60
47.6	128.1	1.85
50.8	144.4	2.1

Table Figure 5.

Figure 1 depicts the standard ZS6U Mini-shack Special, which is two-wavelengths long on 10 metres and a quarter-wavelength on 80 metres. In this configuration, the change in direction of the wire at the apex splits the antenna into two one-wavelength sections. Starting with the 50 degree lobe angle of a one-wavelength antenna in free space, the wire tilt, apex angle and height can be derived. The two pairs of horizontal lobes tend to reinforce to produce low angle, bi-directional radiation along the

plane of the wire. As with all end-fed antennas, the lobe amplitude in the free end direction exceeds the reverse lobe due to progressive radiation loss along the wire. The gain due to the two-wavelength wire which is about 1.5 dB, is added to the gain from lobe reinforcement, which is about 3 dB to provide a total gain of about 4.5 dB in a wide beam at a vertical angle of less than 10 degrees in the direction of the open end of the wire. The theoretical patterns are shown in the accompanying vertical and horizontal — plane diagrams for 10 metres. On the lower frequency bands, the lobes become progressively mis-aligned resulting in higher angles of radiation with less directivity and gain.

Figure 2 is the full size ZS6U Special which is four-wavelengths long on 10 metres and a half-wavelength on 80. Here the tilt angle is 35 degrees resulting in a triangle having a height of 12 metres. If the dimension, which represents the height at which the wire is connected to the L-network, is taken to be 1.5 metres, then the pole height would be $12 + 1.5$ 13.5 metres compared with 9.5 metres for Figure 1.

Due to the larger dimensions, the gain of this configuration is about 6 dB on 10 metres with a somewhat narrower beamwidth than Figure 1. As long as the full height is used the performance on the five bands is marginally better than the mini-version by about 1.5 dB on each band. If the best possible performance is desired on 80 metres, this is the version to use. It requires the L-network shown in Figure 5.

The lobe alignment principle for low wave angles is also employed in Figure 3, which is half of the inverted-Vee of Figure 2, having the same tilt angle and height, but using only two-wavelengths of wire. As the polar diagrams indicate this version is less desirable than Figures 1 and 2, but is preferable to a straight wire or a random shape. Apartment dwellers please note that this version may be used sloping downwards at the angle shown with good results. You will need to be on the fourth floor or higher.

METAL OBSTRUCTIONS

The near side of the wire is at high impedance on all bands and should therefore be insulated and kept as far as possible from metal obstructions such as metal window frames, gutters, cables, etc. For example, it is not a good idea to close a metal-framed window, etc with the wire clamped between the metal parts. Ideally, the near side of the wire should be secured to an anchor insulator and then should enter through an air brick or wooden-framed window. If a metal-framed window is the only entry point, a small hole should be drilled in the centre of the glass pane (or plastic sheet replacing the glass).

The support for the apex of the antenna should preferably be a wooden pole guyed with nylon rope or metal wire, broken up by egg insulators. In certain cases, where there are two suitable high points on either side of the antenna plane, they can be joined horizontally by nylon rope and the antenna wire thrown over the rope to form the apex.

If a metal pole is used, it is best to shift it two or three metres to one side so that it does not lie precisely in the vertical plane of the antenna. The resulting slight tilt in the plane will have little effect on the performance.

MORE ABOUT ORIENTATION

All three configurations described show decided gain in the direction of the free end of the wire and should therefore be erected pointing in the desired direction. If space allows, two antennas may be erected at right angles and switched alternately to the L-network antenna terminal by means of a porcelain insulated knife switch. Little is to be gained by joining two such antennas together as the power in

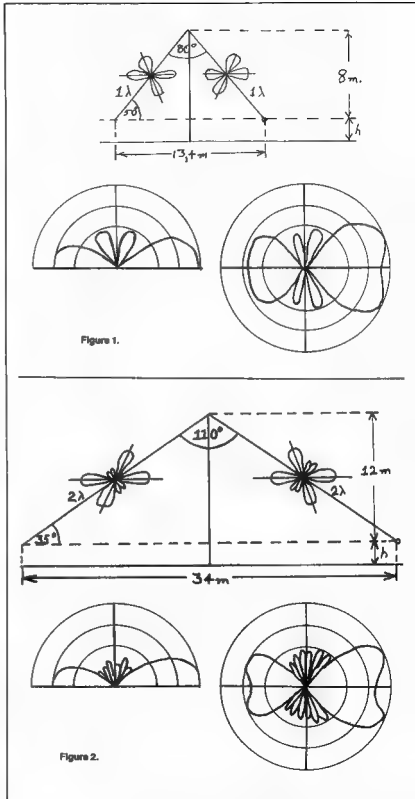


Figure 2.

THE ZS6U MINISHACK SPECIAL — ILLUSTRATION FIGURES 3,

4 and 5

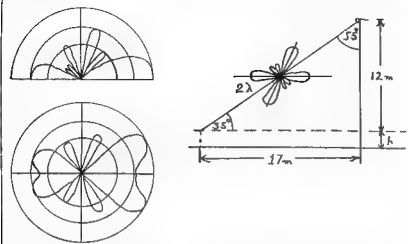


Figure 3.

each lead would be halved. The impedance at the feed point would also be halved, upsetting the matching of the L-network

MORE ABOUT THE L-NETWORK

Figure 4 shows the network for two-wavelength antennas of the sort shown in Figures 1 and 3. Figure 5 is the network that must be used with the antenna of Figure 2. The network of Figure 5 can also be used with lengths of 8, 12, 16, 20, etc. wavelengths for the adventurous experimenter. The lengths above are given for 10 metres as this is the highest frequency we have been considering, but there is no reason why, using the information given in the original article a system should not be adapted for six or two metre inverted-Vee antennas.

One of the problems facing builders of the original L-network was that I used a piece of 35 mm OD polyethylene tubing for the former and based my coil data on that. Well there is a way for you to use the same number of turns and the same taps with a different diameter former. I derived the following formula, where l_1 and d_1 represent the given length of winding and diameter of coil, and l_2 and d_2 represent the new length and diameter

$$l_2 = l_1 \frac{d_1^2 + d_2^2}{d_2^2}$$

The formula is accurate over a 1.5:1 range. I have worked out a set of values for three and one for both networks, which are presented together with Figures 4 and 5. For example, if you use a coil diameter of 38 mm for the network of Figure 4, you must spread the 20 turns evenly to occupy a winding length of 47 mm. The maximum wire diameter given (in this case, 1.17 mm) is derived from a spacing between the turns equal to the wire diameter. Use the nearest smaller standard size. An air wound coil has the lowest losses, but if you use a former make sure it has a reasonably low power factor at 30 MHz. The switch is of the ordinary single-pole, five-position, water variety and the condenser should have a spacing of at least 0.5 mm between the plates, otherwise arcing may occur. Enclose the unit in a plastic box. If a metal box is used, the coil should clear the metal by at least 25 mm on all sides.

I must emphasise that the L-network must be looked upon as the equivalent of a quarter-wave transmission line and that resonance on each band (and therefore pure resistive load) is indicated by a dip in reflected power reading. These dips should be found once and the condenser scale calibrated for future operation. If you insist on leaving your SWR bridge permanently in the coax, then there are a few words of advice. As amateurs are inveterate experimenters it will not take long to discover that if you fiddle with the L-network condenser while tuning up (contrary to instructions) you may find the setting to one side of the correctly marked setting which gives a higher reading on the "forward power" scale of the SWR bridge. You are about to fall into the trap of believing that you have discovered a way to radiate more power. But alas, in reality the higher reading is due to undesired reactive voltage being added to the desired resistive voltage. The moral is, interpret SWR meter forward readings with caution.

MORE ABOUT THE TWO-WAVELENGTH ANTENNA ON 80 METRES

Some constructors have had difficulty loading on 80 metres. On this band the antenna is a quarter wave long and an earth is essential for its operation. As with any quarter wave antenna, every metre of earth lead adds to the overall length of the antenna system.

If your earth system is so unsuitable that the antenna will not take power on 80 metres, there are three ways of handling the problem.

- If the earth lead is about five metres long, or less, use a variable condenser of about 300 pF with about 0.5 mm plate spacing in series with your antenna wire to cancel out the inductive reactance thereby electrically shortening the antenna. Set the condenser for minimum reflected reading in the SWR bridge. This condenser should be shorted out during operation on the other bands.
- It can be made of the property of a half-wavelength of wire to repeat at its near end the conditions that exist at its far end. Choose an earth point sufficiently far away to accommodate about 39 metres of earth

lead, the far end of which is then soldered to the earth point. Use insulated wire because the centre of the halfwave will be at RF potential above ground. By varying the length of this lead, the antenna can be brought into exact resonance.

- Use can be made of the property of a quarter wavelength of wire to act as an inverting transformer. Take a piece of insulated wire about 18 metres long, connect one end to the earth terminal of the L-network and leave the far end free. The excess wire can be stapled around the skirting of the shack or hung out of the window or trailed along the ground, but must not be grounded. As in (b), above its length can be trimmed to provide exact resonance. It should be noted that with this method an additional electrical earth must be provided to the rig for lightning and mains protection. If the protective earth connection upsets the antenna resonance, connecting an RF choke in series with it consisting of a close wound single layer of PVC insulated wire on a 10 or 15 mm ferrite rod to isolate it from the RF earth. In any case, it is good practice to use such a choke, especially when the mains earth is used to reduce RF interference with your neighbours.

Here's wishing you an outstanding signal!



QSP

GOLDEN ANTENNA AWARD

With a view to encouraging the world-wide production of high quality films and audiovisual programs in the field of telecommunications and electronics, the IUT is organising Golden Antenna 87, the Fifth International Festival of Telecommunications and Electronics Films, within the framework of Telecom 87, the Fifth World Telecommunications Exhibition, which will take place in Geneva from October 20-27, 1987.

The Fourth Film Festival, which took place in 1983, was a remarkable success with a record number of entries: 80 films and tape-slide presentations from 20 countries and three international or regional organisations. Australia took part in Golden Antenna 83 and that production, which was seen by a large audience including international specialists, aroused particular interest. It was a good example of how the basic aim of the festival was achieved.

As in 1983, it is intended to screen the films chosen for the Festival throughout Telecom 87 so that as many visitors as possible can see them and evaluate the progress made in the vast field of telecommunications, and its impact on socioeconomic development in today's world.

The Festival hopes that Australia will participate in the 1987 Film Festival, which has become an important feature of Telecom 87, a fact which is confirmed by the number of acceptances already received.

—Contributed by A G. H. Zandi, Film Festival Director

The Wireless Institute of Australia would once again like to participate in this prestigious event.

Any members with experience in film making, and who would be willing to assist the Institute in preparing an entry, should contact their Federal Councilor, or the General Manager of the WIA at: PO Box 300, Caulfield South, Vic. 3162.

An OBLIQUE VIEW OF LC OSCILLATORS

Don Law VK2AIL

RMB 626, Adelung Road, Tumbalong, NSW 2729

Watt for watt, those ancient cycles would travel as far as modern transmitters now send them.

It has always struck me as being a bit off the mark to discuss the operation of LC oscillators in terms of 'when the base (or grid) goes this way the collector (or anode) does this or that and tickles, couples, pushes or pulls or whatever and maintains oscillation'. Invariably each type of oscillator requires a different explanation. All perfectly valid of course; but isn't it rather like putting the cart before the horse? After all, LC circuits were oscillating quite happily long before the days of valves and transistors. As man has always travelled, moved from A to B, so LC circuits have always been capable of oscillation; like bells do ring. Where man can accomplish his transposition in diverse ways, ie by plane, rail, road or being fired out of a cannon, travel being the thing, tuned circuits may be biased, shocked or fired into oscillation. A means to an end. The early spark transmitters are a classic example. One great big spark and a dozen or so exponentially diminishing RF cycles of oscillation occurred. Here the parallel with the cannon-propelled man ends. Watt for watt those ancient cycles would travel as far as modern transmitters now send them. By rapidly repeating the spark in an attempt to sustain oscillation, information (Morse) could be transmitted to a remote receiver that also had no active components. Unless one could argue that a coherer fell into this category.

The point I make is that oscillatory current in an LC circuit, or a precise frequency determined by

$$f = \frac{1}{2\pi\sqrt{LC}}$$

is the thing. How sustained oscillation is accomplished seems secondary. This view is supported by the inordinate number of devices and circuits designed to do it. There is no one way. Only the LC circuit itself retains its originality and does what it has always done. Why doesn't it oscillate continuously? Well, why doesn't a bell ring forever when hit with a hammer? Because of metal stress and heat losses, air resistance and support damping losses. It takes energy to do things; once that energy is dissipated there is no more.

The losses in an LC circuit are coil resistance (including skin effect at high frequencies), capacitor dielectric resistance (leakage) and dielectric absorption. (Ever had a belt off a television picture tube hours after it had been discharged?)

Tuned circuit losses, the cause of oscillations being 'damped' as energy passes back and forth between coil and capacitor, may be lumped into a single equivalent resistance value. To press home my point, that active devices are secondary in oscillator circuit explanation, is the fact that by introducing an equal amount of negative resistance into the circuit, the cause of 'damping' is removed and sustained oscillation takes place. Series-wise,

$R = \text{zero}$. It no longer exists. The tetrode valve may be used to provide the negative resistance. Due to secondary emission, the anode characteristic has a negative resistance region. As the anode potential is increased the anode current decreases, (over a portion of the curve). See Figure 1.

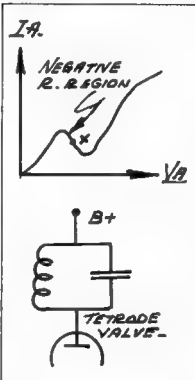


Figure 1.

If a parallel tuned circuit is placed in the anode circuit, and the anode voltage adjusted to point X (on the curve), oscillation will occur. Ah! you may exclaim, but you have used an active device! Alright! Then I will use a diode. A tunnel diode, that is surely passive. See Figure 2.

At 0.58 volts my circuit oscillates continuously. Get the point? All that is necessary is a means of adding or introducing into the LC circuit sufficient negative resistance to cancel the resistance of the tuned circuit. What about power oscillators you may ask? Oscillators used to drive power amplifiers.

Surely power must be provided by the active device. Sure it is, in the right form and at the correct timing but it originates from the power supply; as it does in the tunnel diode oscillator. And, because taking power from an oscillator results in increased equivalent series resistance in the LC circuit, reduced Q factor, more negative resistance is required and is provided by a harder working active device.

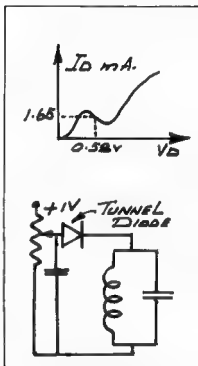


Figure 2.

So whatever type of LC oscillator you come across, think first 'Tuned Circuit, Resistive Losses,' then 'source of negative resistance and how introduced.'

I did mention that this was an oblique approach, but it is worth a few moments thought.

SPECIAL CONDITION

As many amateurs are aware, the Department of Communications (DOC), at present, allocates frequencies within the 576-585 MHz band for amateur television repeater transmitters. However, this is done on the basis that amateurs may employ the band until such time as it is required for use by the broadcasting service, around late 1987.

To give amateurs ample warning, all new and reissued amateur television repeater licenses in the band 576-585 MHz will include special condition 54, which states:

Future assignments for this frequency band are currently under review and licensees may be required to change frequency or to cease transmission completely, when this review is done.

Signed: J. Haggbottom
Manager Licensing
Operations Branch
Department of Communications

A SQUARE WAVE GENERATOR

Part Two

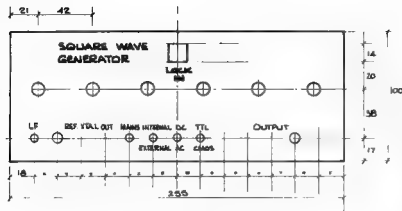


Figure 8 — Front Panel Layout.

Ken Kimberley VK2PY
21 Nicoll Street, Lakemba, NSW 2195

Last month, Part One of this article described the theory of operation and design of a phase-locked, variable frequency square wave generator. Part Two looks at the construction and testing of the unit.

Firstly, to the metal bashing.

The unit was squeezed into a Norwood case, type number B4/10/V, purchased from Dick Smith Electronics, Catalogue Number H2455. Actually, there was sufficient space inside the case, but the front panel is a little on the small side for my liking.

A scrap of aluminium sheet, sized 180 x 150 x 1 mm was obtained. This was then fitted, by means of angle brackets, 30 mm up from the bottom of the case. Mount it flush with the rear wall, leaving a clear gap behind the front panel to give access to the switches and their associated wiring — thus forming what we OTs used to call a chassis.

Next came the front panel layout, details of which are shown in Figure 8. The sizes shown suit the components used by the author and may require alteration to suit those used by the individual.

After making all of the holes, check your handiwork by temporarily mounting the switches, etc. Satisfy yourself that everything fits as intended and nothing has been missed. If all is well, remove and store these parts.

The next stage is painting the front panel. Proceed as follows.

Firstly, remove the sheen by rubbing the aluminium with some steel wool and a little elbow grease. This provides a surface to which the paint will adhere more readily. Now, using a paint pressure pack, spray on the primer, followed by two coats of your favourite coloured enamel. Be sure to follow the paint manufacturer's directions carefully, especially in regard to time between coats.

Label as desired and a coat of clear lacquer will complete the embellishment. Engraved dial labels (Cat No H3770) were used for the decade frequency selector switches, thus considerably reducing the artwork required.

Modular Construction was used for the electronics. Four individual boards were used, five if the crystal oscillator is counted. Boards One and Two are on the top-side of the chassis and run parallel with the front. They are mounted to the extreme left and front so as to

leave enough room for the power supply and oven. Three and Four are placed on the bottom, immediately below One and Two.

In the interests of brevity, power supply and board mounting, etc will not be detailed. The following items are on the rear panel.

Mains Input Grommet
Fuse
12 and 15 volt Regulators
SO238 Coaxial Socket for the External Drive Input.

The top side of the chassis carries boards One and Two, power transformer, mains terminal block, 3000 uF electrolytic capacitor and, of course, the reference oscillator. The underside has boards Three, Four and the bridge rectifier.

Having drilled holes for the above, mount and wire the power supply components. Carry out "the smoke test" and if all is well 12 and 15 volts will appear at the output lugs of the two regulators.

ELECTRONICS

The main electronics are built onto four hard wired DIL boards (Cat H5602). The contents are itemised below and are enumerated from left to right.

- NUMBER ONE, THE VCO — Figures 4 and 9.**
a. TR2 (BC108 or similar) "Lock Indicator" drive.
b. TR1 (BC108 or similar) TTL to 12 volt CMOS converter.
c. IC13 4013 Symmetry correction/Divide by 2.



The Wired PLL Board.

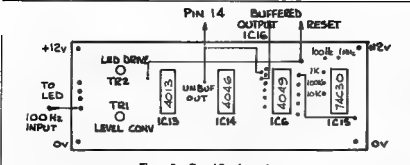
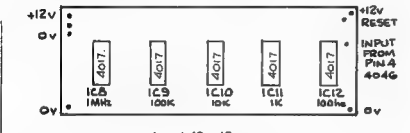


Figure 9 — Board One Layout.



Layout of Board Two.

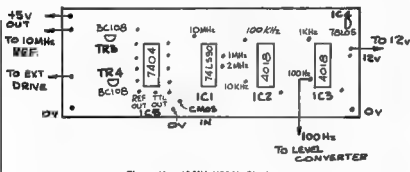


Figure 11 — 10 MHz/100 Hz Clock.

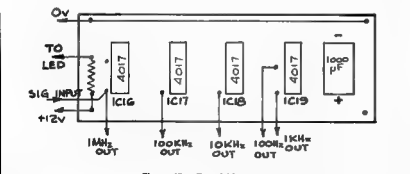


Figure 12 — Board 4 Layout.

- b. TR4 (BC108 or similar) External 10 MHz Shaper/Amp.
c. IC5 7404 CMOS to TTL, plus buffers for items (a) and (b), as well as spare
d. IC1 74LS90 Divide by 10 to 1 MHz.
e. IC2 4518 Dual divide by 10 to 10 kHz
f. IC3 4518 Dual divide by 10 to 100 Hz.
g. IC4 78L05 Five volt regulator.

NUMBER FOUR. Down Range Extender — Figures 5 and 12.

Contains four integrated circuits.

- a. IC18 4017 Divide by 10.
b. IC17 4017 Divide by 10.
c. IC16 4017 Divide by 10.
d. IC19 4017 Divide by 10.
Total available division is 10 000.

The same method of construction is used for each board, and to avoid being repetitious, the construction of number one will be detailed here.

Free use is made of "circuit test pins (Cat No H5580) and are shown thus * on the circuit diagram. They are used for transistor connections, power supply feed, all buffer inputs and outputs (used or not) signal in and out for each IC, and other points as and when required.

Sockets are provided for all DIL integrated circuits and are the first items soldered into the boards. Next comes the supply lines, positive along the top whilst the negative runs along the bottom. Solder lugs are organised so that their holes coincide with the board mounting holes and are positioned so that they may be soldered to the earth pins.

Now run the IC earth leads, using bare tinned copper wire and/or any convenient tracks. Leave the inter-connection lines, not forgetting the Vcc (positive) supply, and then followed by the inter-chip wiring using insulated wire. Wherever possible wiring is run along the upper surface and soldered underneath, or to circuit pins.

Earth the unused buffer inputs (not outputs), fit resistors and capacitors.

Before going further, inspect your work under a strong light. Remove possible shorts and resolder any dubious joints. When completely satisfied, wire in transistors and the 78L05 regulator.

The IC pin spacing must now be adjusted to suit that of the socket. This is done as follows:

Hold the chip firmly using both hands, press down firmly against the bench top, and tilt the IC slightly. The opposite side is treated the same way. *Carefully* does it are the operative words here. Better to have two or three attempts than to finish with mangled pins.

Now carefully insert the chips into their sockets, making sure that you have them polarised correctly. The board is now complete and hopefully without errors or omissions. If confident, mount it into its appointed space on the chassis. Maybe it would be prudent to make one final check? It is surprising how simple errors creep in when one is in too much of a hurry. My advice is not to hurry as there is always another day!

The remaining boards are handled in a similar manner, complete but do not, at this stage, mount board four.

Run the 12 volt supply to each board in turn, followed by the few inter-board connections, and then the four wires to the "Lock" indicator. Do not fit, at this time, any switches, etc except the power ON/OFF one. Their absence, together with all of the associated wiring, gives a lot more "elbow room" during preliminary testing.

TRIAL RUN

Run five temporary connections from the summing gate to the programmable divider.

- d. IC14 4046 Phase comparator and VCO.
e. IC6 4049 Hex Inverter, Buffers, etc.
f. IC15 74C30 Summing gate.

NUMBER TWO. Programmable Divider — Figures 3 and 10.

- Contains five integrated circuits.
a. X 1 MHz IC8 4017.
b. X 100 kHz IC9 4017.

- c. X 10 kHz IC10 4017.
d. X 1 kHz IC11 4017.
e. X 100 Hz IC12 4017.

NUMBER THREE. 10 MHz Clock/100 Hertz — Figure 2 and 11.

- a. TR3 (BC108 or similar) Internal 10 MHz Shaper/Amp.

1. IC15 (74C30) to IC8 (4017) pin no 2 = 1 (1 MHz)
2. 74C30 to IC9 (4017) pin no 1 = 5 (100 kHz)
3. 74C30 to IC10 (4017) pin no 3 = 0 (10 kHz)
4. 74C30 to IC11 (4017) pin no 3 = 0 (1 kHz)
5. 74C30 to IC12 (4017) pin no 1 = 5 (100 Hz)

Switch on and check that the correct Vcc appears at the right places. If the clock oscillator has not yet been set, do so now using your counter or the station receiver tuned to WWW, etc.

Move the counter to the buffer output pin (No 4) of the 4048, on Board One. Using an insulated trimming tool, adjust the VCO trimmer (TC1) from minimum towards maximum. If all is well, the counter display will suddenly jump from random counts to a rock steady 15005 MHz. The "Lock" indicator should now glow steadily. Nil or pulsing display means zero or only partial lock.

FAULT FINDING

Failure to lock indicates a wiring error or a faulty component. Fault finding with a CRO is relatively easy, however, for those without a CRO it will be much more difficult. Don't despair as many checks may be made using your receiver, and/or multi-meter.

Use your receiver to verify that the clock oscillator is running and then that the divider board is producing the correct frequencies. If this is happening Boards Three and Five are clear.

The programmable divider may be tested as follows.

A little extra wiring is required, all of which is temporary and is merely to enable one to assess the operation of this board. Disconnect the reset line and tie to 0V. Re-route the divider input to the TR1 collector and then connect the level converter (TR1) to the 1 MHz output of Board Three. A capacitor and diode detector will allow the use of the multi-meter as a signal tracer. If you are satisfied that Board Three is counting then the fault must be either in Board One or the inter-board wiring. Remove the offending board from the unit and arm yourself with a copy of the circuit. Remove all ICs. Now check for unintentional shorts between every chip connection. Then test the circuit through, step by step. Ensure that every earth shown on the diagram has been made. Some of the ICs use multiple earths and will not operate correctly if one has been missed.

DECADE SWITCHES

Having arrived at the stage of having the unit "up and running" attention is now directed to the installation of the five decade frequency selector switches. They are fitted and tested,

one at a time. Due to the limited space inside the case, it was found easier to pre-wire them before assembly onto the front panel. The use of different coloured wire makes for easier sorting at the board end. The author used wire which matched the standard resistor code. Rainbow flat cable is an easy way to obtain such an array of colours.

Commence at the 100 Hz end and fit the switch. Remove the temporary wire No 5, then connect the 10 wires to their assigned places. Ten go to IC12 (4017) and the 11th goes to pin 2 of the summing gate.

Verify your work by connecting the counter and rotate the switch from zero through to nine. The output frequency should increment from 15000 to 15009 Hz in 100 Hz steps.

The process is then repeated for the remaining four switches. Note that the X 1000 is a two-pole, four-position type.

Section "a" is wired to pins 3, 2, 4 and 7 of IC8, corresponding with frequencies of zero, one, two and three megahertz. The "B" pole is used to switch-in extra capacity to the VCO circuitry to allow operation down to 100 Hz in the "0" MHz position.

Considerable jitter creeps in at the lower frequencies and is reduced by introducing an extra 1.5 nF capacitor via the "LF" switch.

FINAL ADJUSTMENT

This may be accomplished using the station receiver, however, a counter and CRO will make the exercise a little easier.

Proceed as follows:

HIGH FREQUENCY LIMIT

1. Turn TC1 to maximum C.
2. Set SW1 to "3" and switches 2 through 5 to "b." (The "Lock Indicator" will most likely not be "On" or it may flicker.)
3. Tune the receiver to 3.0 MHz.
4. Slowly tune TC1 towards minimum. A point will be reached where a strong signal will suddenly appear on the receiver and the "Lock" will settle to a steady glow.
5. Leave SW1 at "3" and set SW2 to "5" (3.5 MHz).
6. Retune the receiver to 3.5 MHz and repeat step 4.
7. Repeat at 100 kHz intervals until maximum lockable frequency is reached.

The author's prototype struggled up to 3.9990 MHz, albeit with an excessive locking time.

MID-RANGE FREQUENCIES

8. Turn SW1 to "1" and all others to zero. Check for lock and 1 MHz signal on your receiver.
9. If okay, rotate other switches to 9999 and verify frequency. "CX" will need to be reduced if unable to reach 1.9999 MHz.

LOW RANGE FREQUENCIES

10. Set SW1 at "0" and "LF" to OFF. Use "Counter" to check output frequency at all switch positions.

11. Connect CRO to output. "Jitter" should be apparent on the waveform at frequencies below approximately 100 kHz.

12. Switch "LF" on. The "Jitter" should now stop. If still evident, increase the 1.5 nF capacitor slightly. Do not use more "C" than required.

FUTURE PLANS

These include substituting a XR2206 chip lieu of the 4048a VCO section. The idea here is that sine, square and triangular waveforms would then be obtainable.

Then, of course, a low impedance emitter follower feeding into a calibrated switchable attenuator, and maybe an output meter could be considered.

Alternatively, one could stay with the square wave only configuration and use a 74 HC 4048. This IC utilizes 3.5 μ silicon gate μ well technology to obtain high frequency operation. It is specified to give a typical frequency of 18 MHz with a VCC of six volts.

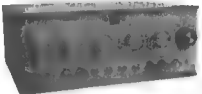
Heavens, quickly secure the lid, before any more possible features (and more work) are thought of!

A full Parts List has not been prepared for this project, however most of the hardware items come from Dick Smith Electronics stores. These include the power transformer, case, sockets, circuit pins, DIL boards, knobs and toggle switches. The semi-conductors were purchased from Rod Irving Electronics. Minor components were obtained from various other suppliers, including the "good-old Junk Box".

Thanks are extended to Mrs B Brown for typing this article.

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Internal View from bottom.

Internal View from top.

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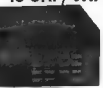
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Equipment Review

ICOM IC12AT 1296 MHz FM HAND-HELD TRANSCEIVER

By Gil Sones VK3AUJ

In collaboration with:
Kevin Phillips VK3AUQ
Lionel Curling VK3NM
Peter Ford VK3YTB

Below: Close-up view of Key-pad and LCD Display.

Ten years ago, hand-held transceivers had established their place in amateur radio. They had limited channel capacity and their features were limited.

Icom have now released a 1296 MHz hand-held radio with all the features of their 144 MHz and 432 MHz hand-held radios. Just to have produced such a transceiver is quite an achievement. The performance of the transceiver is better than that of many fixed stations of 10 years ago. Hand-held radios have certainly evolved during the last 10 years.

The IC12 is a very highly developed hand-held transceiver. None of the features of Icom's other hand-helds are lacking. The IC12 comes with a complete range of memories, scanning, priority, call channel, tones and repeater operation.

Usage of the 1296 MHz band presents a problem in testing equipment on air. However, with two units to test and the assistance of home stations, the capabilities of the IC12AT were

When first delivered, there were some qualms about the safety of use of the hand-helds. This is not peculiar to these hand-helds, but applies to any hand-held transceiver. The critical factors are the power radiated, the length of the aerial, and the distance from the operator. A higher powered hand-held with a short aerial can approach the limits for exposure to electromagnetic radiation.

Calculation of the likely electromagnetic radiation from the IC12AT indicated that it would be well below 10 mW per square centimetre under normal operation. This was later confirmed by direct measurement using an RF Radiation Monitor.

Performance measurements at 1296 MHz require relatively sophisticated test equipment. In order to obtain the figures shown, the two hand-held radios were passed to Kevin VK3AUQ. The results are shown in Figure 1.



The performance obtained is very satisfactory and is remarkable from such a small radio. The transceivers were operated from battery packs, so the performance is the actual performance obtained in use.

Figure 1 — Receiver Sensitivity.

ICOM IC-12AT	S/N 01097			S/N 01098		
	1260	1280	1299	1260	1280	1299
Mute opens	0.6 μ V	.07 μ V	98 μ V	.07 μ V	.06 μ V	.07 μ V
SINAD 12 dB	.23 μ V	.39 μ V	.25 μ V	.23 μ V	.21 μ V	.25 μ V
Receiver Audio O/P		> 500 mW			> 500 mW	
Distortion at 500 mW		7.6%			5.3%	
Distortion at 50 mW		6.8%			3.3%	
Receiver Current Muted		82 mA			80 mA	
Receiver Current Full Audio		230 mA			230 mA	
Transmit O/P Power High	900 mW	830 mW	890 mW	690 mW	670 mW	730 mW
Transmit O/P Power Low	91 mW	86 mW	74 mW	92 mW	87 mW	84 mW
Deviation		4.5 kHz			4.6 kHz	
Squelch	Only Squelch	2nd Harmonic	-50 dB		2nd Harmonic	-56 dB
Frequency (Ambient 20 degrees Celsius)						
Transmit Current High	1.1 A	1.8 kHz low	870 mA	1.01 A	4.1 kHz	885 mA
Transmit Current Low	490 mA	435	378	500 mA	940 mA	410 mA
ICOM IC-12AT	S/N 01097			S/N 01098		
	1260	1280	1299	1260	1280	1299

Battery consumption done with 12 volts external and battery pack removed.

OVER THE WALL

or Packet In the US



Field tests were carried out with the assistance of Lionel VIGNON and Peter VK3YTB. Home stations also assisted with tests. Lee VK3ZBJ, provided contacts to various sites in Melbourne's eastern suburbs over distances of 35 to 40 km.

The IC12AT was very simple to operate. Signals were very clear with excellent audio quality on both transmission and reception. Flutter was greater than on two metres, but did not detract from reception.

Penetration of the signals through buildings, vegetation and hills was not as good as at home stations. However, this was tested to extremes. The coverage overall was particularly good. A well sited home station gave excellent coverage to a mobile hand-held. Similarly, contacts of around eight to 10 km were maintained, hand-held to hand-held with suitable suburban terrain. Both ends of this contact were in elevated, but locally obstructed conditions.

A repeater on 1298 MHz would really make the IC12AT shine! Excellent coverage with small aerials would be obtained.

Battery drain is somewhat greater due to the circuitry which must be used. A spare battery pack would be a good acquisition. The batteries are NiCad and a suitable charger is supplied.

Another alternative is to use a spare pack of alkaline cells. This can usually be replenished without the waiting time for NiCads to charge. Overall the IC12AT is an excellent hand-held transceiver. Quite surprisingly good results were obtained.

The concept would have been an impossible dream, 20 years ago. Only 10 years ago, it would have been still a pipe dream. Today the IC12AT is an achievement loom can be proud of.

AT A GLANCE EVALUATION OF THE ICOM IC12AT HAND-HELD TRANSCEIVER

Initial Hand-Off and On/Off

APPEARANCE

***Single carton with foam insert. Individual packaging of accessories and transceiver inside.

Weight and Size ***Not the lightest hand-held, but very acceptable.

External Finish ***Very well finished combination of metal and plastic.

Construction Quality ***Excellent.

FRONT PANEL

Location of Controls ***A very neat layout. Well thought out.

Size of Controls ***Pretty hard to make them bigger.

Labelling ***Excellent.

LCD Display ***Excellent, with status indicators and light if suitable.

RECEIVER OPERATION

Sensitivity ***Excellent.

Received Audio ***Excellent.

Memories ***Ten, with priority, call frequency and repeater offset.

8-Memo ***Bar-graph for comparative use.

TRANSMITTER OPERATION

Power Output ***Very good considering size, the frequency and the battery operation.

Transmit Audio ***Excellent.

Output Indicator ***Bar-Graph of relative output.

Instruction Manual ***Comprehensive manual covering all aspects of operation. Circuit provided.

Overall Rating ***An excellent hand-held radio, which is even more remarkable considering the operating frequency.

RATING CODE *** Poor, ** Satisfactory, *** Very Good, **** Excellent.

Packet radio is unique to amateur radio. I read in a recent newspaper article that amateur radio operators were generally considered to be a group very "tolerant of eccentrics," presumably because the hobby is generally solitary. Until packet radio came along, amateur radio consisted mostly of interaction between man and his radio. If you couldn't get your voice heard or message through with 50 watts, well, crank up the power or tune the antenna. There was very little co-operation required between amateurs, and when it was, a few could (and can) mess up everything.

Packet changes all of that. Without a well-defined communications protocol, we could not recognise anything coming from somewhere else. Without a lot of co-operation and goodwill, our very fragile network of digipeaters will simply stop working. That is why the extension of digipeaters to the western slope and on to Utah, and theoretically to California, is such a remarkable feat. California has W6AMT, with 12 or so digipeaters bearing his call sign, to form the backbone of WESTNET. The east coast has many amateurs who can get together to buy and put up a digi here and there.

We have some wonderful sites, but darned few people and even less money, but with what we have, we've built a successful Level 2 link between Denver and Salt Lake City. Now that the sites are there, and people are used to the strange buzzing noises they sometimes hear on 145.010 MHz, we will be ready when true Level 3 networking comes, with higher speeds and better channel utilisation. Until that happens, though, we are stuck with what we have got, which is a link that works — sometimes. Here is some information on the Colorado portion of the link, and to the east, we know about it, the people who helped put the digipeaters up!

NOBRI-1 is the first link in the chain. It is located on Santoy Mountain, near Kremmling, several metres from the Kremmling VOR, a well-known aircraft navigational aid. Since it is located approximately 75 miles (120 km) due west of Boulder, it ought to be easy to find it — but the continental divide is in the way! However, KOZCO (and several others) in Denver; KE8LT in Boulder and W0HJX in Greeley have been able to work this digipeater consistently. The digi was installed earlier this year by NOBRI, whose name in the call book is Louis, but everyone calls him Sunshine. He lives in Eagle, and is an electrician in Vail. The digipeater runs 25 watts and uses a Kantronics TNC. Ironically, Sunshine cannot work his digipeater from his house. It also does not hit Vail, and Sunshine and Phil W0KEA, will probably install another digipeater on Bellschne Ridge, between Eagle and Vail so that Phil can use packet. The Eagle/Vail amateurs have been very active in the use of packet to exchange golf scores during the Annual Jerry Ford Golf Tournament.

NOBRI-1 has also proven popular with vacationers, and given the terrain it should be able to connect to NOCCZ-1, which is just over 100 miles (160 km) to the south-east. Some of the links in Utah are over 200 miles (320 km) and they seem to work well. However, no one has thus far been able to get from Santoy to Colorado Springs directly.

About 58 miles (94 km) south-west of NOBRI-1 is K0GUZ-1, which is located on Sunlight Peak, which in turn is at 10 500 feet about 12 miles (19 km) south-west of Glenwood Springs. This digi was installed in May 1985, so it has the distinction of being the oldest one on the western slope. It was a joint venture between a lawyer, Bob K0GG, and the county judge, Steve K0GJZ, and a computer consultant and instructor, Bob K0MWM. The digi is in the same building as the K0CJ, 07067

repeater, and consists of an old Motorola Moxi single-channel rig running 18 watts or so, and a GLB TNC. The combination has proven extraordinarily reliable, which is a good thing since the site is not accessible during the winter except on snow shoes or by snow cat.

There are several active packet stations served by this digi, including K0GUZ and Mel W0HLD in Rifle, K0GG and K0MWM in Glenwood Springs, Neil K0TIV in Carbondale, and Rob K0YBX in Aspen.

The next digipeater is W0RRZ-1, Grand Junction, located on Black Ridge, just west of Colorado National Monument. W0RRZ-1 is 79 miles (136 km) from Sunlight, but the path is unusually excellent — except during the hot summer when it almost seems as if the shimmering heat waves distort the signals so much that it is not entirely reliable. The digi has been installed by several people who have formed a western slope club; among them were, K0DWZ, W0BECV, K0ASLV, K0G0U, W0MTK, W0B0DU, and K0BNF K0B0SW, in nearby Colbran can also use the digi. Most of these amateurs are actively engaged in computer engineering or are employed in communications, working for Mountain Bell, GTE Spacenet or one of the local television stations.

Earl K0DWZ, has succeeded at the monumental task of writing, from scratch, a W0RVL W0ATMBL bulletin board system in Basic to run on his 8-100 bus system. The BBS, K0ACHZC2, has now been on the air for several months, and most of the bugs have been worked out of it. It will automatically receive and forward messages to the eastern slope and send and receive files (within reason) and monitor the frequency, just as the others will do.

Located on Blue Mountain, near Dinosaur, CO, is the newest digi, W0T7AB-1, alias BLU. BLU is located 85 miles (132 km) west of K0GUZ-1 and 77 miles (123 km) north of W0RRZ-1. It should be possible to hit it reliably from either one. It is the first of the digis in the chain installed by the "Utah Group," which has been actively installing digipeaters fanning out from Salt Lake City. First, they reached Los Angeles, now they are going north to Boise, east to Colorado and west to Reno, Nevada.

The only person to be reached on this digi is Gary N07B, who has had a packet rig in Vernal, Utah for 18 months and nobody to talk to.

Then, there is another digi in Central Utah, 25 miles (40 km) north-west of Price on Ford Ridge, near Scofield Reservoir. It is K0D7Y-1, alias FORD. This provides a reliable link to Snowbird, a mountain-with-ski-resort located at 11 000 feet, near Salt Lake City. The Snowbird digi is K0D7YK-2.

From K0D7YK-2, I have worked the W0U20 bulletin board, W0Y7AZ, K07WAG and N7BHC, all in the greater Salt Lake area. KE8LT and W0HJX, among others, have at least managed to connect to Salt Lake City from the Denver/Boulder/Greeley areas using these paths (via NOBRI-1, K0GJZ-1, BLU, FORD, K0D7YK-2) but the connection is not very reliable.

From Salt Lake City you can theoretically link south of Provo, then to Cedar City (a leap of nearly 200 miles (320 km); Las Vegas and then Los Angeles. That is the theory, but in practice it is somewhat different: nobody has been able to do it so far!

Everyone keeps repeating it: the 145.010 MHz digipeaters were never meant to be long distance networking. However, assuming that everything is working and everyone co-operates to avoid hogging the frequencies, they do a pretty good job.

Written by K0GUZ in the R0PRA > PACKET and taken from Gateway: The APRS, Packet-Radio Newsletter Vol 3, No 4

ANNUAL INDEX FOR AR-1986 . . . Volume 54

ANTENNA

Aerials & Farms	May 22
by John Gaudin VK3JQ	
An Antenna Length Chart	
reprinted from CQ Magazine	Sep 20
Antenna Arrays Part 1 — Theory & Equations	
by Paul McMahon VK3QIP	Aug 11
Antenna Arrays Part 2 — The Program	
by Paul McMahon VK3QIP	Sep 6
Antenna Arrays Part 3 — Installation and Use	
by Paul McMahon VK3QIP	Oct 4
Antennas for Satellite Communications	
Basic Antenna & Feeder Design Primer	Aug 20
by Fred Robertson-Mudge VK1MM	May 8
Beam Head neds & Great Circle Distances	
by Tony Belts VK5ZBU	Feb 13
Beam Rotators	
by Fred Litcher VK4RF	Aug 17
CB Antennae for 20m	
by Lionel Curling VK3NM/ZL3SW	Aug 36
Dipole Formula	
by Jim Linton VK3PJ	Feb 7
Matching Impedance Formula	
by Dudley Gailor VK3KJ	Nov 3
M-Matching for Extended Bandwidth	
by Bill McLeod VK3MI	Apr 18
More about a Mu-band End-Fed Inverted-Vee Aerial System	
Reprinted from Radio ZS	Dec 12
Multiband Directional Antenna	
Repr. n from RADIO	Jul 6
Multiband End-Fed Inverted-Vee Aerial System	
Reprinted from Radio ZS	Nov 6
Near-Field & Photographic Antenna Measurements	
by Ian Keenan VK3AYK	Aug 21
Open Wire Fed HF Mu-band Dipole	
Parasitic Beam Program for Commodore 64	
by Joseph Ortao VK7NJO	Jun 7
Plumbing into Antennas	
by P. Hiet VK7TH	May 28
Portable Antennas for Eighty Metres	
by K. B. Bena VK4AK	Jan 20
Portable Three-element Beam for 2-metres	
by George Cranby VK3GI	May 24
Practice, Earth Resistance Measurements	
by George Cranby VK3GI	Jul 10
Reproduce your Molexy T333	
by Ted Gabriel VK4YG	Mar 8
Resonant Rhombic	
by Joe Ellis VK4AGL	Mar 10
Stepped Loop Antenna	
by Bruce Hanna/Vord VK5KJ	Jun 8
SWR Coupler Fe. n for 12.900Z	
by Den. Sm. th VK5LS	Nov 44
The Hantenna	
by Tadashi Ok. bo JH1FCZ	Jun 4
T. n Resonant Rhombic	
by Joe Ellis VK4AGL	Mar 10
Tuning Mob. e HF Antennas	
by Earl Russe VK3BER	Oct 35
Two-Loop Loop for Six Metres	
by B. H. Lochnode VK4WL	Apr 8
VHF Antennas for 144MHz	
by K. England VK4TPE	Apr 9
Voltage Fed Loop Antennas	
by David Robertson VK5RN	Apr 10
Where do I Beam?	
by Ian Crompton VK5KIC	Jul 8

AWARDS

100-A	Nov 52
A.G.O.A. Branch Award	Nov 52
Al Shawsmitth Journalistic Award	
History of the	Sep 5
Amateur Radio Magazine Awards	
by 1985	Feb 31
ARAC Cagou Award	Aug 49
ARRL International Humanitarian Award	Feb 30
Asian Games Award	May 43
Australian Awards Update	May 43
Australian Awards Update	May 43
Australian Awards Update	Jul 51
Australian Awards Update	Aug 49
Australian Awards Update	Aug 44

Australian Awards Update	Oct 46
Australian Awards Update	Nov 52
Australian Awards Update	Dec 52
Australian DXCC Ladder	Apr 42
Australian DXCC Updates	May 43
Award Winners	
from the US	Nov 52
BARTG Awards	May 43
BFR Awards	Apr 43
Bustaban ARC Award	Apr 42
Bulgarian Awards Program	Sep 44
Bung. Award	Aug 49
Cape Wiloughby Lighthouse Award	Jun 43
Citizen of the Year Award	Jun 47
DARC DX Awards	Aug 49
Deutscher ARC	Jan 52
Diploma Fracap	Jun 42
Diplome Du Gabon	Aug 48
DX-pedition Award	Jan 52
Ex-Service Awards	Apr 42
FKS Commemorative Award	Aug 49
Frankston & Mornington Peninsula ARC	
Anniversary Award	May 43
Frankston & Mornington Peninsula ARC	
Anniversary Award	Jun 43
Certificate	Dec 49
Golden Antenna Award	Mar 48
Hail Flag Day	Aug 49
HMAS Castlemaine Award	Jul 51
Hungarian Awards Program	Sep 45
International Radiosport Association	Oct 48
J50 Award Net	
Updates	Apr 42
Jubilee 150 Nets	Jan 52
Jubilee 150	
Rules Update	Jul 51
Jubilee Industry Train Award	Jun 42
Kuwait Award	Mar 48
Land of the Bearded Award	Feb 30
Lawrence Hargraves Award	Jun 42
Major Mitchell Award	Jan 52
Major Mitchell Award	Apr 44
Marion's Centenary Celebrations Award	Sep 44
Mercantile Centenary Celebrations Award	Oct 48
Certificate	Nov 52
Melish Reef 87 DX-pedition	Oct 49
Nigerian ARS 25th Anniversary	
Celebration Special Award	Oct 49
Pacific Steamer Industry Jubilee 150 Award	Sep 44
Pacific Steamer Industry Jubilee 150 Award	
Certificate	Oct 49
Rally Australia Award	Sep 45
RNARS Awards	Mar 49
Ron Wilkinson Achievement	
Rules and Winner for 1985	Mar 3
Royal Jordanian JY50 Award	Mar 49
Tasmanian Awards	Apr 42
United Nations at 40	Apr 42
Updated Listing of WAWKA Awards	Feb 30
Vanua'u ARS Award	Aug 49
Victory 40 Award	Sep 44
Recipients	Feb 30
VKS Jubilee 150 Nets	Apr 42
WAZ Australian Agent	Mar 49
WTA Awards	
Updated Listing	Mar 48
WIA 75 Award Recipients	Apr 39
WIA 75 Award Recipients	Jun 43
WIA 75 Award Recipients	Jul 51
WIA 75 Award Recipients	Aug 49
WIA 75 Award Recipients	Nov 52
WIA 75 Award Recipients	Dec 52
Worked All Countries Award	Sep 44
Worked All Countries Award	Jul 51
YL International SSBers, Inc.	Sep 44

DIAMPLANS

Band Planning for the High Frequency Bands	
by Ron Henderson VK1RH	Feb 20
Band Planning for the VHF/UHF Bands	
by Ron Henderson VK1RH	Apr 24
Band Planning	
Main QSP	Jan 3
Beacon	Sep 43
Beacon Planning	Jul 57

BOOK REVIEWS

by Tim Mills VK2ZTM	Aug 52
ARRL Region Three Band Plans	
by Ron Henderson VK1RH	Feb 22
Report on the FTAC Band Plan Paper	
by Peter Gamble VK3YRP	Nov 28
Report of the FTAC Repeater & Packet Papers	
by Peter Gamble VK3YRP	Sep 30
WVA Band Plan for 1240-1300MHz	Mar 40

BOOK REVIEWS

Amateur Radio Software	Jan 50
ARRL Antenna Compendium	Oct 50
Morse Code: The Essential Language	Nov 42
QRP Notebook	Nov 42

COMPUTER PROGRAMS

AC/DC — a computer program for the C64 Computer	
by Joseph Ortao VK7NJO	Nov 16
Basic Antenna & Feeder Design Primer	
by Fred Robertson-Mudge VK1MM	May 8
Beam Headings & Great Circle Distances	
by Tony Belts VK5ZBU	Feb 13
Computer Contests	
by Joe Kasser G3ZCZ	May 11
Computer Log Program for a Microbee	
by Karl Saville VK5AHK	Jan 18
Latitude and Longitude from a Street Directory	
by Noel Lavelle VK3ABH	Jan 26
Learn Morse on Your Computer	
by Kevin Bond VK3CKB	Sep 13
Morse Code Practice Generator	
by Lindsay Stronell VK3BRV	Jan 7
Parasitic Beam Program for Commodore 64	
by Joseph Ortao VK7NJO	Jun 7
Random Morse Commodore 64	
by Neil Cornish VK3GPN	Sep 63
RTTY on your Apple Computer	
by David Armstrong VK3PNL/VK3QJP	May 29
Second Operator Computer	
by Roy Taylor VK3BTL	Jan 11
Station Log	
by Joseph Ortao VK7NJO	Jul 19
Use Your IBM PC/XT (or clone) for RTTY	
by Bryan Dunkley-Smith VK3YFL	Sep 16
Where do I Beam?	
by Ian Crompton VK5KIC	Jul 8

CONTEST

ALARA Contest	
Results for 1985	Mar 38
ALARA Contest	
Rules for 1986	Sep 38
All Asian DX Contest	
Rules for 1986	Jun 40
Amateur Radio Direction Finding Championships	
ARI Int'l an International	
Contest Rules	Apr 41
ARRL Championship Trophy	May 40
ARRL International DX	
ARRL 10 m CW Contest — Rules	Dec 39
ARRL 150m CW Contest — Rules	Dec 39
California QSO Party — Rules	Sep 39
CLARA QRP Contest — Rules	Mar 48
Colombian Independence Contest	
Relas	Jul 34
Commonwealth Contest	
1986 Rules	Oct 49
Commonwealth Contest	
1986 Results	Jan 45
Commonwealth Contest	
1987 Rules	Dec 38
Computer Contests	
by Joe Kasser G3ZCZ	May 11
Contest Championship Trophy	
Winner Amendment	Nov 40
Contest Disqualification Criteria	Apr 44
County Hunters SSB Contest	May 40
CQ WW DX Contest	
1986 Rules	Nov 41
CQ WW 150 m SSB — Rules	Feb 43
European DX Contest — Rules	Aug 47
Golden Anniversary Commonwealth — Rules	Dec 38

HF Contest Championship — Winners	Sep 38	Amateur Radio Future Dimensions	Feb 14	International Travel Host Exchange	Aug 43
Hungarian DX — Rules	Jan 49	by Jim Linton VK3PC & Roger Harrison		Transatlantic Travel Host — Additions	Oct 43
IARU HF Championship — Rules	Jun 40	VK2ZTB		Introducing BY4 Able Old Men	
International Police Association Contest		Amateur Radio Magazine Awards for 1986	Feb 31	by Jim Linton VK3PC	May 30
— Rules	Nov 41	Amateur Radio Thematic Philatelic		Intruder Watch: First Certificates Issued	Jan 53
IRSA World Radio Championship — Rules	Oct 47	by Jim Linton VK3PC	Sep 26	It Grew Like Topsy	
John Mayr Memorial National Field Day	Feb 41	Another RAAF Old Timer — Type 128 Transmitter		It Grew Like Topsy	Mar 9
1985 Results		by Ted Roberts VK4OI	Nov 24	It Grew Like Topsy	Oct 26
John Mayr Contest	May 30	Armed Raiders Hit Electronics Retailer	Jan 54	JAS-1 is got	Sep 32
1986 Activity		Astra Telecom '85 and 9V1FH		Land & Sea Satori	Nov 21
John Mayr Contest		by David Rankin VK3CNY/1FH	Jan 54	Learning the Code — a novel approach	
1986 Results	Jul 36	Australian Amateur Station Call Signs	Sep 33	by Alan Stephenson VK3PT	Aug 18
LX DX Contest — Rules	Apr 39	by Jim Linton VK3PC		Membership	Jun 4
LZ DX Contest — Rules	Sep 39	Australian Radio Journals before 1939 (continued from December)		by Gil Griffith VK3CGG	Aug 41
National CW & Phone Sprints — Rules	Oct 45	by Chris Long	Jan 30	Membership in Japan	Oct 43
National Fox Hunt Championship — Rules	Jan 6	Band Planning	Jan 3	Mexican Earthquake from the other side	Apr 60
President's Cup	Jul 31	Band Planning for the High Frequency Bands		News from Great Britain	Feb 3
Winner for 1986		by Ron Henderson VK1RH	Feb 20	News from London	Jul 35
QRP ARCI 1986 Fall CW Contest — Rules	Aug 46	Band Planning for the VHF/UHF Bands	Apr 24	Notion Island a DXer's Delight	Jul 25
RAOTC QSO Party — 1986 Rules	Apr 51	by Ron Henderson VK1RH		by Phil Connolly VK3B	
RAOTC March QSO Party — Results	Jun 47	by Tim Mills VK2ZTM	Sep 43	Notice Licensing into the 21st Century	Jun 18
RAOTC Winter QSO Party — Results	Nov 55	Beacon Planning	Jul 57	by G S Bracewell VK3XX	Aug 27
Remembrance Day Contest	Feb 40	Beacon Planning		Open Letter from DOC	Jul 5
Remembrance Day Contest		by Tim Mills VK2ZTM	Jul 57	Operating in Iraq	May 31
amendments to results for 1986	Apr 40	Beacon Planning		Packard Radio the future	
Remembrance Day — 1986 Rules	Jul 28	Beacon Planning	Aug 62	Packard Radio the future	
Remembrance Day Contest Scoring		Beacon Planning		by Peter Gamble VK3YRP	Mar 20
Remembrance VK1RH	Aug 22	by Lloyd Burke VK5BR	Jul 13	Picnic at Seventeen Mile Rocks	Apr 19
Remembrance Day Opening Address — 1986	Oct 28	Bill and the Dummy Load		Polar Radio 1912 style	
Remembrance Day Contest		by Ted Holmes VK3DEH	Mar 12	by Tony Smith G4FAI	Mar 17
1986 Results	Dec 26	Bill and the Morse Practice		Power Line Interference Noise & Amateur Radio Reception	
Ross Hull Memorial VHF Contest	Apr 41	by Ted Holmes VK3DEH	Mar 25	by Sam Vinton VZ8VS	Mar 28
1988/87 Rules	Nov 40	Bill and the Morse Practice		Precise Time Comparisons	Nov 28
RSGB 7MHz SSB & CW	Jan 49	Bill and the Morse Practice	Mar 63	Prophecy from the Past	
RSGB 7MHz CW — Rules	Feb 42	Bill and the Morse Practice		by Alan Shewsmith VK4SS	Jul 20
RSGB 7MHz CW — Rules	Feb 42	Bill and the Morse Practice		Remembrance Day Contest Scoring	Aug 22
Scandinavian Activity Contest — Rules	Sep 39	Bill and the Morse Practice	Jan 47	by Ron Henderson VK1RH	Oct 28
SEA-net SSB Contest — Rules	Aug 44	Bill and the Morse Practice		Remembrance Day Opening Address	Oct 28
UBA SSB Trophy — Rules	Feb 42	Bill and the Morse Practice	Jun 3	Repeater's Friend or Foe, a further look	Sep 28
Venezuelan Contest 1986 — Rules	Jul 28	Bill and the Morse Practice	Oct 23	Repeater's future	Feb 8
VK Novice Contest	Mar 48	Bill and the Morse Practice	Jan 62	by Peter Gamble VK3YRP	Apr 2
Results for 1985		Bill and the Morse Practice		Report of 28th JOTA	
VK Novice Contest	May 41	Bill and the Morse Practice		Report of the FTAC Repeater & Packet Papers	Sep 30
Rules for 1986	Oct 44	Bill and the Morse Practice	Nov 4	Report on the FTAC Band Plan Paper	Nov 28
VK Novice Contest		Bill and the Morse Practice	Jan 23	Restructuring the Canadian Amateur Service	Sep 8
VKZL/Oceania DX Contest	Aug 42	Bill and the Morse Practice	Apr 19	by Sam Vinton VZ8VS	Nov 22
Results 1985		Bill and the Morse Practice	May 53	General Details & 1985 Winner	Mar 3
VKZL/Oceania DX Contest	Aug 43	Bill and the Morse Practice	Oct 22	RTTY Pioneer Tells How it all Began	Jan 44
Rules 1986		Bill and the Morse Practice	Aug 8	Samuel Finley Breese Morse	Jan 23
VKZL/O Contest	Oct 42	Bill and the Morse Practice		Saturday Reflection	Apr 30
1985 Overseas Results		Bill and the Morse Practice	Mar 57	Schedule of Countries with which Australia has Reciprocal Licensing Arrangements	Nov 22
West Australian Annual 3.5 MHz CW & SSB Contest — Rules	Aug 46	Bill and the Morse Practice	Oct 24	Second Adelaide Scouts, VK5BPA	Nov 27
WIA 75 RTTY Art — Results	Jan 6	Bill and the Morse Practice	Aug 13	Amateur Radio — in honour of JOTA	Nov 27
YLDM Midwinter Contest — Rules	Dec 45	Bill and the Morse Practice	Jan 31	Seeing Halley's Comet the Second Time	Jun 11
YLDM Contest — Rules	Dec 45	Bill and the Morse Practice	Sep 32	Sewing Circle Story	Mar 60
EDUCATION		Bill and the Morse Practice	Sep 32	Simulated Emergency Test (SET) 1985 & 1986	Mar 60
AOCP Trial Examination Paper	Jan 43	Bill and the Morse Practice	Nov 11	by Sam Vinton VZ8VS	Mar 30
AOCP Theory Examination Paper	Apr 48	Bill and the Morse Practice	Oct 43	Sixth IARU Conference of Region Three	Feb 10
NAOCP Theory Examination Paper	Apr 48	Bill and the Morse Practice	Jun 63	Stolen Equipment	Oct 12
EQUIPMENT REVIEWS		Bill and the Morse Practice	Mar 57	Television	Jan 64
Icom IC-12AT 1296 Hand-Held Transceiver	Dec 29	Bill and the Morse Practice	Nov 11	Interfered Old Time	Jan 21
KDK FM-240 2m FM Transceiver	Aug 30	Bill and the Morse Practice	Mar 54	Thanks Wireless Institute	May 47
Kenwood KT-220E 2m Hand-Held Transceiver	Oct 31	Bill and the Morse Practice	Apr 42	UHF Television	Nov 19
Kenwood TS 440S Transceiver	Jul 22	Bill and the Morse Practice	Jan 5	Underground Waves	Jan 22
MASPRO Antenna's WH532	May 42	Bill and the Morse Practice	Jun 29	VH-UHF Records	Sep 38
Programmable Memory Keyer Yaseu FRG-8500 Receiver	Nov 30	Bill and the Morse Practice	Mar 48	Victorian Railways Institute Wireless Club	Jan 14
GENERAL		Bill and the Morse Practice	Jun 23	VISJSA to Celebrate Century Centenary	Aug 47
1926 Trans-Pacific Tests	Sep 21	Bill and the Morse Practice	Sep 3	Voyage of St Juliet	Mar 16
A Bird in the Hand	May 4	Bill and the Morse Practice	Mar 48	Voyage of St Juliet	Aug 6
by Bob Roper VK3PU		Bill and the Morse Practice	Sep 17	What's in a Name	Jan 13
A Meeting with Jack	Nov 20	Bill and the Morse Practice	Feb 25	When Morning, Remember the Human Factor	Jun 20
by Bob Roberts VK7KZ		Bill and the Morse Practice		reprinted from The Short Wave Mag	
Aircraft Restoration	Jul 9	Bill and the Morse Practice			
by Keith Muller		Bill and the Morse Practice			
ALARA — A look at the life of Florence McKenzie	May 46	Bill and the Morse Practice			
Amateur Holiday in Liechtenstein	Jul 50	Bill and the Morse Practice			
by GHS Penny ON5NT	Mar 22	Bill and the Morse Practice			
Amateur Radio at EXPO 86	Jun 26	Bill and the Morse Practice			
Amateur Radio Crosses the Nullabor	Jan 28	Bill and the Morse Practice			
by Graham Horlin-Smith VK5AQZ		Bill and the Morse Practice			

[illegible]

by Russell Lemke VK3ZOB	Feb	21
RTTY Test Generator		
by Peter Gibson VK3AZL	Nov	12
Second Operator Computer Style		
by Roy Taylor VK3BTL	Jan	11
Simple Add-On Tuning Indicator for		
SECTA Demodulator		
by D Hunter VK4ADC	Jan	25
Small Signal BUT Amplifiers		
by Don Law VK2AIL	Oct	14
Stepped Loop Antenna		
by Bruce Hannaford VK5XJ	Jun	8
Square Wave Generator - Part 1		
by Ken Kimberley VK2PY	Nov	8
Stable VFO with Digital Read-out		
by Morris Odell VK3DOO	Jun	10
Starting a Radio Electronics Workshop	Feb	37
Station Log		
by Joseph Ortuso VK7NJO	Jul	19
SWR Coupler Failure in FL2100Z		
by Den Smith VK5LS	Nov	44
Technical Symbols	May	56
Technical Symbols	Aug	19
Tester for Coil Inductance		
reprinted from QST Magazine	Sep	22
Tropospheric Scatter Propagation		
by Ian Roberts Z8BTE	Mar	13
Tuning Mobile HF Antennas		
by Earl Russell VK3BER	Oct	35
Two-Fing Halo for Six Metres		
by Bill Lochridge VK4WL	Apr	8
Use Your IBM PC/XT (or clone) for RTTY		
by Bryon Dunkley-Smith VK3YFL	Sep	18
VHF Antenna Tuner		
by K England VK4TPE	Apr	9
Voltage Fed Loop Antennas		
by David Rillartsh VU0RN	Apr	10
Where do I Beam?		
by Ian Crompton VK5KVC	Jul	8
Where do Magic Formulas Come From?		
by Bruce Devenish VK1BUB	Mar	12
Why are there Sidebands in AM		
Transmissions?		
by Greg Baker L20282	Apr	27

TRIUMPHAL MEETINGS

Harry Angel VK4HA	Dec	42
John Atkinson VK4RZ (ex-VK2RZ, ex-ZL1RT)	Feb	47
Noel Atkinson VK4BT (SK)	Jul	21
Harold Bremmenman VK4HB	Feb	47
Arthur Ernest Dillon 4CH4EZ	Apr	31
Roy Kerr VK4DK	Dec	42
Herbert Peter Christian Larsen OAV		
VK4JW (SK)	Aug	28
Val McDowall 4CM	May	9
Frank Nolan VK4JU	May	15
Jennifer Warrington VK5ANW	Aug	3

TRY THIS

Can't Hear the Monitor?		
by Eric Smith VK3CES	Nov	25
CB Antennas for 20m		
by Lionel Curling VK3NM/ZLSW	Aug	36
Certified Holes		
by Merv Smith VK2ZD	Mar	16
Dipole Formula		
by Jim Linton VK3PC	Feb	7
Make your own Labels		
by Rob Abel VK2ERA	Oct	35
SWR Coupler Failure in FL2100Z		
by Den Smith VK5LS	Nov	44
Tuning Mobile HF Antennas		
by Earl Russell VK3BER	Oct	35

WIA NEWS

Address to 75th Dinner		
by Richard Butler	Jan	5
General Manager	Nov	3
National Fox Hunt Championship	Jan	6
Phone Patch Update	Jan	5

WICEN

60m Calling Frequency	Mar	49
Cyclone Coast	Jun	64
Cyclone Wimp	Jul	46
Emergency Procedure	Jul	18
Murray River Marathon	Mar	49
NDO Annual Exercise	Mar	49
New Co-ordinators	Jul	47
WICEN and Off Road Racing		

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AMATEUR BANDS BEACONS

FREQUENCY	CALL SIGN	LOCATION
90.010	J42GY	Mie
90.016	HA8EQI	Honolulu
90.075	V56SIX	Hong Kong
50.109	JD1YAA	Miami Tori shima
52.013	P22BPL	Lobos Island
52.020	FK5AB	Noumea
52.100	2K2SIX	Nive
52.150	VK0S3	Macquarie Island (Keyer)
52.200	VK6VF	Darwin
52.250	ZL2VHM	Manawatu
52.310	ZL3MHP	Hornby
52.320	VK8RTT	Wickham
52.325	VK2RHY	Newcastle
52.350	VK6RTU	Kalgoorlie
52.370	VK7RST	Hobart
52.420	VK2RSY	Sydney
52.425	VK2RSG	Gunnedah
52.440	VK4RTL	Townsville
52.450	VK5VF	Mount Lofy
52.480	VK6RPH	Perth
52.485	VK6RTV	Albany
52.470	VK7RNT	Launceston
52.465	VK6RAB	Alice Springs
52.465	VK6RBS	Busselton
144.010	VK6RBS	Mount Mawboun
144.400	VK6RBS	Canberra
144.420	VK2RSY	Sydney
144.430	VK3RTG	Glen Waverley
144.485	VK6RTV	Albany
144.485	VK5VF	Darwin
144.485	VK6RAB	Alice Springs
144.550	VK3RSE	Mount Gambler
144.585	VK6RBS	Port Hedland
144.600	VK6RTT	Wickham
144.800	VK5VF	Mount Lofy
144.850	VK2PCW	Sydney
145.000	VK6RPH	Perth
432.075	VK6RBS	Busselton
432.150	VK6RBS	Newlands
432.410	VK6RTT	Wickham
432.420	VK2RSY	Sydney
432.440	VK4RBS	Brisbane
432.450	VK3RAI	Melbourn, Melbourne
432.535	VK3RMB	Mount Buninyong
432.540	VK4RAR	Rockhampton
1296.171	VK6RBS	Busselton
1296.420	VK2RSY	Sydney
1296.480	VK6RPH	Nedlands
10300.000	VK6RVF	Royston

1 Correction to location — my original report last April was correct. A note in the North West Amateur Radio Society Newsletter for October 1986, which says about the location... "All was fine until August 1986, when the WA VHF Group got in on the act and told everyone the beacons were now at Port Samson (Karrathel), that is pretty close I suppose, only 60 or so kilometres apart. Then comes September AR and it was in Karrathel!" The correction has been noted and the listing changed as from this issue. Will the WA VHF Group also please note for their list VK5LP.

2 A further note from Ian VK3QAP, advises the need to correct the frequency of his 70 cm beacon from 432.475 to 432.450 MHz. This has been duly changed this month, also. Plans are in hand to raise the power level from the present one watt to the maximum of seven watts as allowed under his licence.

THE NORTH-WEST

From the North West Amateur Radio Society Newsletter comes the news of some exciting two metre contacts. On September 10, 1986, from 1200 to 1255 and on September 11, around 1545, contact was established between Doug VK4UJN, on Koolpin Island and the Darwin Channel 8 Repeater and stations worked included VK6A ZWM, LM, DL, ZED, PC, KJJ, and TA. Doug made the contacts with 30 watts to a nine element Yagi! The distance is about 900 km. This appears to be the first time such contacts have eventuated.

Also a first was the two-way contact between Brian VK6AII, in Port Hedland and Ron VK6UF, on Koolpin Island on two metres, the distance being about 750 km. Contacts with Ron should be easier now that he has lifted his power to 200 watts.

Repeater VK6RCA, at Carnarvon is operational with 146.075 input and 146.675 MHz output and is being looked after by Jim VK6CA. Tests were to be carried out in October from the Carnarvon Light-house, which is a tower more than 30 metres high, right on the coast and, if successful, should suit ducting up and down the coast.

A new operator on six metres in Port Hedland is Peter VK6BB, who has 100 watts to stacked Yagis and is keen to see the Es season start. Perhaps he will not have to wait too long as Dave VK6YA, had a short contact with JH8MQZ/5 on 52.050 at 0830 on September 12. The JA also reported hearing the VK6RTT beacon quite well. It is good to see the measure of activity taking place in the north-west, as area nicely situated for contacts to Indonesia, when conditions permit. It is noted that regular use is being made of the various repeaters to give indications of ducting.

It is of interest to note that the Newsletter is sent to 29 amateur operators in the area above 400 MHz. How many are actually operating on VHF is not known, but it does indicate an area of considerable amateur interest and VHF operating does seem to be on the increase there.

THE BRAID-BREAKER

From the same newsletter is some information said to assist in curing the ills of television and VCR interference. The source of information is from the ASGB Television Interference Manual and the diagram of the "Faraday Double Loop TV Receiver Filter" is shown herewith and may assist those who are being troubled.

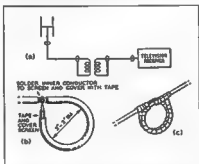


Figure 8.4 — Faraday double loop TV receiver filter. (a) Basic arrangement of filter; (b) detail of one loop; (c) two identical loops are put together, taking care to insulate all wires/screens and taped or laced firmly.

EME CONDITIONS

Doug VK4UM, advises conditions have not been too good lately but the following have been some of his random contacts: 267 — 1345 UTC N4GJV received 43 sent 45; 2245 SM4IVE 449 339; 2307 DF3AU 459 458; 2330 DL9KR 559 449.

On 7/9 at 0730, Z5BUT 0 reports both ways despite the 30 foot (9m) dish at the other end, conditions were just so poor. 26/9 2300 OE8HHV M reports, 2330 SM7GEP 0 reports; 27/9 0000 DK0NA 0 reports; 0020 DF3RU 339 339; 0030 HB5SV 439 439.

Compounding problems in the VK3UM shack was a king-size flame-out of the 4CX250B linear with both valves ruined. This occurred whilst

Roger VK5MY, was making a State Visit, so naturally he receives the blame! VK5LP sent out a parcel of 4CX250Bs which hopefully will get Doug back on the air.

NEW ANTENNAS AT DROUIN

David VK3AUU, has shifted QTH and is now located at Drouin South and is 400 feet (121m) ASL. He reports: "I have just finished building a couple of new antennas. The six metre one is nine elements on a 38.5 feet by two inch boom and the two metre one is 18 elements on a 38.5 feet by 1 1/2 inch boom. As well as those, I also have 33 elements on a 27 feet tapered boom for 70 cm. All are basically DL6WU antennas with 1.1 folded dipoles and 4:1 halfwave baluns, but the element lengths are calculated using an algorithm which I have produced from a set of DL6WU figures. The driven elements are 1.1 folded dipoles which give 200 ohms at the feed-point.

"The two metre Yagi is virtually matched across the whole band and the gain is estimated at 16.8 dBd from the beamwidth of 23 degrees. I can hear in excess of 7 dB of noise from Sagittarius A with a 3SK97 GaAsFET preamplifier mounted where the antenna joins the mast. The Mount Gambier Beacon is now there all the time, even with Trevor's (new) antenna and the Canberra Beacon fades in and out of the noise most of the time, unaided by passing aeroplanes. Ian VK1BG, can always hear my CW and, in fact, I have worked VK1 or VK2 in 11 days out of 18 since the new antenna went up. On 26/9, at 4:30 am local time, I copied Chris VK5MC, back off the moon quite well, which I could not do with an 18 foot Yagi. Tests on the local beacon indicate about a 10 dB improvement in received signals with the new beam about 10 feet higher than the other one and the preamplifier a bit closer to the antenna. I hope to put up four of these monsters, stacked 16 feet apart, in the autumn.

"The six metre version is cut for 50.100 MHz and it does seem to do okay at that frequency but does not do very well at 52 MHz, but I have not done any measurements on it yet." (Probably would have been better cut for 51 MHz when it would have probably been very reasonable over about 2,500 MHz. My eight-over-eight system does not rise above 1.4 to 1 from 50.000 to 52.900 MHz).

"The 70 cm antenna gave trouble in matching and finished up with a T-match and a universal matching stub into a 4:1 balun. It has a beamwidth of about 17 degrees, but that was measured on sun noise which only gets up to 5 dB, so a not accurate. However, the sun noise is above 4 dB from 430 to 440 MHz with a 3SK97 on the boom about 18 inches from the feed. I have heard K2UYH, but cannot hear VK3UM off the moon. I have a 39 feet long 49 element antenna partly constructed, just to see how far you can go, but will probably settle for four by 19.5 feet antennas.

"I have also built a 26 feet high tilt-over tower on which the three Yagis will be mounted for this summer. 50 MHz at 26 feet, 432 at 32 feet and 144 at 40 feet. I have 150 watts on 50 and 144 and 80 watts on 432. I hope I can be one of the top Ross Hull stations this year, but, unlike a lot of others, my activity will not cease after the contest."

Thanks for the letter David, and now that you have retired we are looking forward to some very good signals out of Drouin, which is located about 92 km ESE of Melbourne.

WESTERN AUSTRALIA

I was pleased to receive a letter from Don VK6HK, which he said was a result of him being "named" in my column as one who should be contributing to the DX Standing Column and he comes up with a list commencing in 1951.

Some curiosities which Don lists are:

- 23/9/56 at 0252 KAZDS Japan CW 550 heard on 50 MHz. This was a very early record of Japanese reception in Western Australia. At this stage, 56 MHz was the only band allocated, 50 to 54 MHz having been resumed for the original television channel 1 (49 to 56 MHz). The operator was an American serviceman operating from Tachikawa and Don still has his card and letter of verification of the reception. Don asks, "Any earlier reports?"
- 12/4/82 0600 9VG59 from Singapore CW 549 on 50 MHz. This was the third harmonic of a commercial CW station operating in the 18 MHz band.
- 12/4/82 0801 VPS80 source unknown CW 579 on 50 MHz, also a harmonic from commercial HF.

Both these stations are of interest but not counted in the list.

Don also says: "It was an interesting exercise digging in the old logs and cards for the odd detail. One has cards for the old WAS, Worked all ZL Districts, Worked all JA Call Areas in profusion, but not a lot of different countries. Congratulations to VKQGB/2BA4ZJB etc. Their scores translate into a lot of operating application. Talking with VKQWD over the weekend and we agreed it is a good idea to record what has been workable over the years."

"Until recently, there has been a keen group of ATV operators on almost every day on 70 cm. I have participated but not for some time. The gear can run 100 watts peak sync out if required, although coverage around the city is surprisingly adequate with only 10 watts from the solid-state DSB mod/exciter. Best DX is about 100 km down the coast in tests with VK8KZ/P."

By the way, one of the former stewards of six metres activity, Andy VK6OX, has recently moved to Perth from Carnarvon and has been trying to sell his gear. Perhaps it is only his HF gear? ?? I sincerely hope so. Don, it would be a pity to lose Andy from the VHF-ranks... SLP

FIVE METRES — AGAIN

Last July, I published a letter from John VK5UL, referring to happenings on the old five metre

band, plus his involvement in the early radar applications.

This letter created more than a little interest and several correspondents have commented on it in passing. However, Keith Hettich VK4HK (formerly VK3HK), carried out his own research on early five metre operations and from the large amount of information sent me, including a photocopy of the relevant parts of his log book, I have put together the following for the interest of readers.

Keith originally lived at Mitcham, east of Melbourne, and the saga appears to have started with the return of the amateur bands after World War II and in 1946 quite a high degree of activity was taking place on 50 Mc/s (not MHz then), and for many months before the summer period. Keith took nightly seshes with Eric Thomas VK3ZL of Ballarat. Results were variable, sometimes they only just got through whilst at other times signals could be S4 or S5. They concluded the chances of working interstate were rather remote, but they would keep trying.

Keith had five metre equipment mounted in his private car, operating on 51.4 Mc/s, MCW and phone. On 30/11/1946, he went on to Mount Dandenong hoping that elevation might assist him to contact distances. He worked VK3MJ, VK3NW, VK3ABA and VK3GG, all during the afternoon. On his way home at 1705 local (all times for this purpose of this historic exercise will be local) he heard VK4ZU testing. Each time he put by Keith called him but no answer, despite copying him Sx8. VK4ZU was on 52.1 for about one hour.

It did not take long for the news to get around Melbourne, so next day there were many stations calling CQ DX on 50 Mc/s. News came through on 40 metres that VK2WJ in Maroubra, New South Wales, was hearing VK3HK but no one else, frequency 51.3. His card says: "Congratulations on first 50 Mc/s DX." Time was 1830. At 2102, Keith heard a station being either VK2FF or VK2FB at 4x4.

On 21/2/46, a lot of time was spent throughout the day calling CQ DX until finally, at 1830, VK2OC was called on sched in response to a telegram received earlier in the day saying: "Your six metre signal received 15 pm yesterday playing sched tonight 6.30 and 7 pm and listen 3583 kcle for reply. VK2OC." No contacts resulted from the

calls and the 80 metre link was too noisy and VK2OC was not heard. Lots of further DX call took place during the next two days but only local contacts resulted.

Finally the barrier was broken. At 1900 on 5/12/48, VK3HK was called by VK2NO (Don) in Sydney on 50.4 Mc/s and a two-way contact resulted, Keith sending 5x8 and receiving 5x7, thus becoming his first interstate contact. At 1910 he called VK2AHF and worked him at 5x9. 1917 VK2WJ 5x8, 1925 VK4RY 1945 VK4HR 5x9, 1955 VK4XG 5x8, 2003 VK4ZU 5x9, 2023 VK2AZ 5x7, 2035 VK2LZ 5x8, 2118 VK4HR 5x9 and 2230 VK3MJ 5x9.

The next occasion was on 9/12/46, when at 1810 VK4HR, was 5x9, 2000 VK4FB 5x8 and 2025 VK4AP 5x7, all around 50.7 to 50.9 Mc/s. A letter from M Tomkins at Bundaberg reported reception of VK3HK there from 7 to 9.30 pm at S3 to 7. Thus the signals were settling into the now familiar 1000 miles-plus optimum path for Sporadic E.

Referring to that first contact with VK2NO, this station sent a telegram to VK3NW in which Don said Keith's signals eventually rose to S9 +20 dB so the band was probably just opening up at the time of the original contact. Keith VK4HK, is now asking is the contact between VK3HK and VK2NO was the first interstate contact in Australia on 50 Mc/s? That is a question I can not answer but there may be some reader who can help. It would be of historic interest to know when the first contact was made on that band, bearing in mind that other bands were also being tried at the same time, eg 112 Mc/s etc.

A copy of that all important section of the log of Keith VK3HK is included in this column and your attention is drawn to some of the comments in the "remarks" column. OSL cards are held for VK2NO, VK2WJ, VK2OC and VK4ZU.

LETTER FROM JAPAN

JATVOK sent a letter dated 16/9 (just too late for last month), in which he says six metres opened to VK4 on 12/9 and 14/9 for the first time during their

A portion of the log of Keith VK3HK.

		NAME		TIME		REMARKS	
	1946	VK2OC	x	5.4	5.4		
	2045	VK3NHV	x	5.4	5.4		
	2150	VK3MJ	x	5.4	5.4		
3/12	2152-41	VK3GG	x	5.4	5.4		
	2200	x	VK3MJ	5.4	5.4		
4/12	2137	CGDX	x	5.4	5.4		
5/12	2140-46	x	VK2NO	5.8	5.4		
	1910	VK2AHF	x	5.4	5.8	From Acad of Sydney	XX
	1917	x	VK2WJ	5.4	5.4	Spd at Angus, 2nd Colist	XX
	1945	x	VK4HR	5.4	5.4	Kid, R8-9 on 3rd wave 2012/4/4	XX
	1925	VK4RY	x	5.4	5.8	Brisbane	XX
	1955	x	VK4XG	5.6	5.8	Gordon 8328 Faded Duple 22x87	
	2003	x	VK4ZU	5.9	5.8	Faded out. 2012	XX
	2023	x	VK2AZ	5.7		Not heard after 1st over.	
	2035	VK2LZ	x	5.6	5.8	Discovered my call after faded out	XX
	2118	VK4HR	x	5.4	5.8	Tell me Testable	
	2230	x	VK3MJ	5.4	5.4		
12/12	1940	VK4HR	x	5.4	5.7	60m north of Brisbane Caloundra	XX
	2000	VK4FB	x	5.6	5.9	Brisbane	XX
	2025	x	VK4HR	5.7	5.9	Brisbane 4FB, all	

autumn. JE1TGN worked VK4KWX and VK4FXZ around 0810. The VK4s were also finding stations from JA1, JA2 and JA7.

JA1YOK worked VK2KGJ4 in Cairns at 0750 on 14/9 at 5x7, later rising to 5x9+ with QSB. Later he heard VK4FXZ, JE1BMA, and JF1PWS also worked on 20/11/85. Channel 6 television on 51 570 was 5x9+ in Japan for an hour from 0745.

Thanks for the letter Yoshi, certainly it pays to keep an ear on the band as one never knows when it will open.

EXPEDITION TO NIUE

By the time you read this, New VK4NZK should be installed on the island of Niue, which is about 430 km east of Sydney, as he was leaving on November 14. Information on this DXpedition was given in the October issue and your attention is drawn to this. It will not be a particularly easy six metre contact, but well worth trying. I have no information as to operating schedules or frequencies.

FROM BRISBANE

Angus VK4AAG, together with his latest, sent a copy of his first QSL card from VK2ZAB to their first Sydney to Brisbane contact on 70 cm, which took place on 27/11/85 at 20:00 on 5x2-300 MHz SSB with signals 5x3. This followed as a result of a suitable port opening and the completion of Gordon's new linear Angus mentions it was not the first VK4 to Sydney as Bill VK4ALC had already worked Gordon from Mount Tambourine.

Angus reports the regular schedule on Saturday and Sunday mornings with Gordon VK2ZAB, are always of interest. The shortness of time available to try and exchange a report on 432 at the peak of aircraft enhancement is intriguing compared to the rather longer periods with other types of contacts. Angus says it is rare for Gordon and he to hear one another for more than about 30 seconds on 70 cm, if you miss the "peak" nothing is heard, so confirmed 70 cm contacts are rare. Lack of space on the antenna tower makes a high gain array difficult for Angus.

Angus continues with regular weekend schedule on two metres to Ted VK4J7W and Errol VK4ZHL at Rockhampton. Reports are usually exchanged and, at worst, carriers heard. 70 cm is more difficult, with only a few phone contacts. Liaison is on 3.620 MHz.

A further paragraph reads: "There is still the tendency as usual for all stations to automatically answer to me to try 558 on 144.100 (why not some other?), often with the ubiquitous slim Jim or vertical beam incapable of hearing weak DX. QSOs at times become lengthy with others joining. I feel the following needs to be considered by all:

1. Where does another local station call CQ on 558 if 144.100 is occupied?
2. If there are horizontally polarised stations working on 144.100 and a mobile or vertically polarised station not hearing them calls CQ, what does a station do who can hear them all, but wishes to monitor for DX?
3. Are those working on 144.100 aware of whether there is a possibility of propagation at that time from ZL stations who call VK on this frequency?
4. Stations working on 144.100 can be a nuisance to stations 100 km or more away, eg stations working in Brisbane can interfere with stations on the Gold Coast, even if they are beaming south, and especially if the Gold Coast stations are listening for ZL.
5. There is less justification for working on the call frequency for lengthy periods than doing the same thing on repeaters.
6. If, despite the foregoing, it is deemed necessary or desirable at some time to be operating on 144.100, is a lengthy pause left by the station next in turn of value, better still, that station also calls QRZ with a further pause? (This allows both station's receivers to recover fully from the AGC).

"With the DX season nigh, I feel it might be time for a further 'plug' for the suggestion in January 1986 AR VHF notes, page 30, for a test area with an interested QSB group to adopt 144.125 MHz as a local netter frequency, far enough from 144.100

to avoid spillover to and from nearby locals wishing to call/listen on 144.100. This would give everyone two frequencies to monitor for activity. If all on 144.125 MHz were enjoined to adopt procedures in six above, the occasional ZL, VKG or VKB breaker might find them. If these rare birds had no luck calling on 144.100 MHz!

"PS - 13/9, Saturday am, good conditions on two metres to VK2ZAB, also managed 4x1 contact on 70 cm, the first confirmed for some time. Gordon had only been able to erect one of his proposed four antennas for that band.

Thanks for the link and your thoughts once more for the use of 144.100. As I said previously there can be nothing wrong with the additional call frequency of 144.125 and I would certainly urge those operating on the band to try and remember to implement the idea, even if you only move there after starting on 144.100, that will be some help. Eventually, it might be accepted Australia-wide for local contacts in the main or at least a second chance for the DX station.

MOUNT GAMBLER BEACON

The SERG Newsletter from Mount Gambler carries a paragraph in the President's Report (Trevor VK5NC), to the effect that recently VK5RSE have had considerable success with the system and it is time. Trevor reports being advised of improved reception from listeners. I must say, the beacon has become more audible of late at the VK5LP establishment, but still not as good as it was before the water got into the original equipment. Trevor is suggesting an even better antenna system would help. Certainly if it can be returned to the situation where it is always there, even though weak, it will serve a purpose, now I find it is inaudible for 30 percent of the time.

OVERSEAS

Bill Tynan W3JO, of The World Above 50 MHz in October QST reports that the hoped for outstanding conditions which he enjoyed in Australia last summer really did not eventuate in the same way in the Northern Hemisphere. Not that their Es season has been that poor, but neither could it be considered "one of the best!" They had the usual periods of ups and downs, culminating in a big opening on six and two metres on 10/5 and then seemed to trail off for a couple of weeks after their Six-Metre Sprint on 17/5. Substantial openings then occurred on 10/6 and 11/6, and these reached to 144 MHz. However, during their June VHF QSO Party, considerable excitement was aroused by the appearance of stations such as VP2MO, 8P6LL, 8P6JW, P2J2EW, YV4YU, HC1BI as well as several KP4s and KP2s. Even OX3LK was worked by about 20 east coast stations. Nevertheless, the enormous Es conditions which we enjoyed over the greater part of Australia during the last week of December 1985, producing so many two metre contacts, certainly did not materialise in the US, so it will be very interesting to see if we are to be treated to a repeat performance this month.

With the increase in activity on six metres from England, trans-Atlantic contacts are becoming more plentiful. On 9/7 from 2232 to 2310, N4WA, who was camped-out on North Carolina's Outer Bank, worked seven Gs and one E, with signals to S5. On 12/7 from Cape Cod, W2CAP1 several, WA1OUB worked 22 Gs and K1JRW worked 15, on 25/7 HISQAF was in for several hours, also the FY7THF and 8Y5RC beacons.

Still sounds like quite a good season to me, apparently there are plenty of six metre stations still around after the peak period of 1979, which augurs well for the future as they probably be there in a few years when the next cycle should peak and we will be looking for F2 propagation again.

THE ROSS HULL CONTACT

I had a State Visit from Peter VK6ZL, recently. He was on his way home after a visit to the eastern states during which trip he took around some suggestions I had noted down for the time when I visited Alice Springs, in regard to the Ross Hull Contact rules.

Apparently, the reception was rather cool in some places but at least they were something for the Contest Manager to think about and hopefully

stimulate some more interest in the Contest. As these notes are being prepared ahead of the November issue of *Amateur Radio*, I am not aware of what rules may have been changed but in any case, I intend supporting the Contest as much as possible and I hope many others will do the same, especially to the point of sending in a log - that is very important!

As I said last month, my wife sees no need to accompany me for the period of my proposed portable operation from 28/12 to 1/1/87 inclusive, preferring to sweet the flies from the comfort of the home rather than a caravan or tent in the summer! The operation will take place from Menzies, where I went last year, and will be on 52, 144 and 432 MHz. If the points scores for this year's Ross Hull give some advantage to long distance contacts, then the weaker signals often encountered from what was pursuing.

GENERAL NEWS

Sometimes it is interesting to note the comments of six metre operators from other areas and here I refer to August 1986 *The Short Wave Magazine*, per favour of Steve VK5ALM: "Some observations of Ted Colina G4UPL, based on his long experience operating from Ascension Island as ZD8TC. He advocates the use of vertical antennas with a summer! The operation will take place from Menzies, where I went last year, and will be on 52, 144 and 432 MHz. If the points scores for this year's Ross Hull give some advantage to long distance contacts, then the weaker signals often encountered from what was pursuing.

The only comment I would like to make is that, a small antenna would be okay for run-of-the-mill Es to 1600 km, etc, but will miss out on really long haul contacts as we get occasionally here, eg double and triple hop and F2. With my eight-over-eight I do not seem to have much trouble getting people to answer my calls from ZL, FK and others.

Six metres has started to open up at various times, mainly to VK2 and VK4. On 10/10 I had a nice contact from 0810 with Lyn VK4ALM, at Rockhampton, with 5x9 signals. Lyn reported Mary VK4PZ, had worked Neil VK2CZU, on 8/10 at 0330, also with 5x9 signals.

As this is the Christmas issue, I once again take this opportunity of saying "best wishes for Christmas and a happy year ahead" to all my readers. I thank those good people who write to me throughout the year telling out their experiences on VHF - without such continuing support the column would become very dull and I am indeed grateful. I thank the Editor of AR for his continuing support of my column and Bett and Ken McLachlan for their encouraging little memos which regularly turn up. Also, thanks to those who telephone information to me, it all helps.

With this issue, my 15th year of writing these columns and there have certainly been many changes in the VHF/UHF world during that time. If I can last 20 years, perhaps I should prepare a summary of happenings over that time. Interested?

Closing with two more thoughts for the month. Money does not talk these days - it just goes without saying and many a live wire would be a dead one except for his connection to the Hills.

—73 The Voice in the Hills.



QSP

ATH HELPS SALVADORAN QUAKE

The Australian Traffic Net handled several hundred messages to El Salvador, in central America, after a 15 second earthquake hit on Friday, October 10.

ATN operator, Ken Richards VK3CKK, said there was a steady flow of third party traffic messages and requests for information on the health and welfare of people in the disaster area.



How's DX?

Ken McLachlan VK3AH
Box 38, Mooroolbark, Vic. 3138

Well, another year has gone by very rapidly and the solar cycle should start to improve from now on. Perhaps Father Christmas, cleaning the chimneys during his trip from the North Pole may have something to do with it.

The variance in the economics have made many astute people wary of how they will spend their hard-earned money and deposits in the bank, but equipment has reached an all-time high in sophistication and value. Good or buy, this is the question?

It is possible to build if one obtains all the parts before commencing, otherwise a project could be left on the shelf for a considerable period before completion, due to one or two components being out of stock and the necessity of awaiting a shipment from overseas. Then again, it may never be completed if the component is discontinued.

One will never be able to copy the sophistication of commercial equipment with home-brew, in volume of the project or performance, and the parts are generally dearer than the commercial unit, so it is a matter of choice. The excitement and satisfaction of building one's own equipment, apart from the frustration of getting it working, (which is part of the fun), cannot be described.

Happy Christmas and health and prosperity to one and all for 1987. Particular thanks are extended to all the contributors, who have made this column as comprehensive as it has been over the year and your participation will be appreciated by all readers again next year.

Next month we will look at how an amateur with extensive experience has viewed the hobby over the years. From playing records in the early pre-war days to being a first class net controller during the last decade. No clues, but many VKs will guess who the guest writer is, and will enjoy his experiences which span in excess of half a century.

DXCC FRESH-START UPDATE

Following my comments in previous columns, I wrote to John W8FJU, voicing my opinion and some comments I had received. Following is a News Release, written by John, Chairman of DXCC, which accompanied his reply to my letter.

NEWS RELEASE

"What is wrong with the DXCC? If what we hear is correct, the DXCC has changed from a gentleman's club to a club in which there is little or no trust. Gone are the days of Gus Browning's escapades and with them, an era of trust and good fellowship within the DX community. Enter Don Miller and we have had almost two decades of red noses, some questionable judgments in applying the DXCC rules and often, an unrealistic view of how the rest of the world should conduct its amateur radio affairs. Somewhere between the present and the past, there must be a middle ground that will yield the sort of DXCC program which will be fair to all and yet remain a test of one's skills and fortitude in the DX world."

"The DXCC is not a baited case and I wish to allay fears that the DXCC is committed to scrapping the present program or, that it has an objective slanted towards a 'fresh start.' That option is just one of many which must be considered and is perhaps the one least likely to be proposed. The DXCC is committed to recommending changes to those parts of the rules which are the source of most of the grievances with the DXCC program. Specifically, the country criteria is overdue for an update to reconcile the piece meal changes which have accrued over the years and to present it in language which is understandable to all amateurs; accreditation has and will remain a sticky issue until some realistic ground rules are established which recognise that all countries do not conduct their amateur radio affairs in the image of the USA. The DXCC has three subcommittees dedicated to studying these and other areas of the DXCC rules. Your inputs are essential. To date,

some of you have recommended 'jimmicked' which would diminish the difficulty of the awards program. If this is what the membership wants, let your voices be heard. In the meantime, the DXCC will proceed on the premise that the honour roll is not to be an 'instant jackpot,' but is reserved for those who have taken advantage of all DX opportunities to catch a new one. Whether it takes a year, five years, or a life time to reach the top of the awards program, is really not a consideration at this time.

"Paraphrasing an overseas DXer's comment on our study: 'The DXCC is recognised around the world as a prestigious club and its awards program is the criteria for all countries.' We intend to keep it that way."

"The DXCC solicits your comments. Put them in writing — ARRL, Attn: DXAC, 225 Main Street, Newington, CT 06111."

John H Parrot Jr W8FJU
Chairman, DXCC

TRAVELLING

The "Globe-trotting" Collins and planning another trip to Africa in the near future, for a duration of six months. One of their main objectives will be to try and operate from Malawi. Unfortunately, Mozambique was a very deceiving "No-No" however, Reunion Island is an affirmative using the calls FR7WQOL and FR7WBGK. All DXers hope that the authorities applied for come to fruition. Good luck into and Lloyd AR QSLs via YASAE. Another DXer, who is Africa-bound, is George Collins FR5FXT. George was due to commence a five months stint early last month after a trip to Jersey and Guernsey, where he used the calls GU3WNE and GU3WNE respectively. He hoped to visit Z33, Z5, A2, 7P, H5, 306, and V9. The visits are not necessarily in the order given, but George has been known to "pop-up" from some unusual places and at some unusual times! QSLs to George via VE3DPS, PO Box 137, Lynden, Ont. L0R 1T0, Canada.

BURMA

Burma, a densely populated country, even though its natural resources are immense, is unfortunately one of the poorest countries in the world. The hobby of amateur radio is lower than last on a list of priorities, if that is possible. The government have written to the IARU on numerous occasions, stating that the hobby is not tolerated for the present. Nevertheless, several Texas stations report working XZ2A, firstly on SSB and later on CW, in the 15 metre band.

Beam headings were correct and, at the time, the band was open to JA. The "operator" said to QSL to PO Box 1214, Rangoon, Burma.

It may be another work first and worry later situation or a complete hoax. Even if the operator is actually within the boundaries of the country, has he or she obtained the certification that is acceptable to Don Search at the ARRL DXCC Desk? I am afraid it is another "ulcer" and more grey hairs for Don if claims are made by the stations XZ2A worked.

COMOROS ISLANDS

Bill D6WVB, and his wife Laura, are medical volunteers who have lived on the island for approximately seven years. Bill was born in Kenya, where his parents were associated with the African Indian Mission.

Doctor Bill, (as he is often called), and Laura, are still associated with the Mission although they work as professionals in a Moslem country with about 10 other westerners. Laura and Bill, a surgeon, look after a 50 bed hospital on the island of Grande Comore.

Prior to being in the Comoros they spent 11 years in Tanzania and 18 years in Kenya.

GORGONA ISLAND

Did you work Gorgona Island? Gorgona was a penal colony until 1985 and is locally known as

David's Island by the prisoners. It was situated under the call SJ0FRC, by the Federated Radio Clubs of Colombia, and was due to activate again during October.

If you contacted them on three bands you are entitled to a booklet about the island, QSL to PO Box 050717, Medellin, Colombia, or PO Box 1767, Bogota, Colombia.

Other operations are planned for the future if you missed this one!

DO NOT QSL VIA JARI

QSLs to J1TJZC, for various operations in the Pacific, will not reach him if sent via the bureau. He is not a member and, it is believed, they will be destroyed. Either send direct or save your cards.

REVILLA GIGEDO

Apparently an operation from XF4 is planned for March, next year, with an impressive list of operators. Quite a number of VKs require this one.

MONACO

I am not attempting to go into the award columnist's department, but those who have worked, or heard (two or three), nine resident stations of Monaco since 1985 are eligible for an award.

Send details or a photocopy of three cards, not bearing the 3A0 or 3SA prefix, or a signed statement by the national awards manager stating that he has sighted the cards, to 3A2FL include 10 IRCs or US\$6. It is a worthy and attractive award and well worth the outlay for award hunters.

DX IN THE DOLDRUMS

Not One should have listened to 10 metres on September 28, around 1400 UTC. For a short time, Europeans were S9+ and from many different call areas. Where you lucky as I did not hear a VK being worked?

It pays to monitor all bands as the conditions are quite strange at the moment, it could be a good sign that the Solar Cycle is on an upward trend! Let us hope so as the "cupboard" has been empty here.

ANTARCTICA

A new group are due to exchange duties with the present crew in the near future. Call signs and names are unavailable at the time of preparing these notes but be listening on the bands for new VK calls emanating from the "Cold South." They are generally below 14.75 MHz and on other bands as conditions and work duties permit.

ABOUT FACE

Can you imagine the Falkland Islands rotating 180 degrees? Not it is not an April Fool Joke, but fact.

According to research at England's Oxford University, they have found that the islands have done a complete half-turn over the last two hundred-million years. Apparently it is a well-known phenomenon and even Australia is heading towards Asia. There is no need to panic as it is only a few centimetres per year — but it is occurring.

Evidently, at one time in history, India crashed into Asia and the land buckled, causing the highest mountain range on the Earth's surface, the Himalayas. India is still travelling northward, virtually burrowing under the area and, since the early settlement of man, it is estimated that the range, seldom conquered by man, has risen some 1500 metres!

So, when next you talk to someone on the west coast of the Falklands, think that the land where the QTH is now, was on the east side of the island at one time!

YEMEN — MAYBE

It appears that plans are afoot to activate 4W. However, the unknowns are when? what call sign? and whether the correct documentation, acceptable to the ARRL, will be available?

According to Bob Winn W5KNE, Editor of QRP DX, commercial communications equipment is

scheduled to be installed in Yemen and, at this juncture, the successful tenderer for the work is sending a technician to Yemen. Apparently, this technician has an amateur licence in his home country. Late news was that the operator was American and was due to leave for Yemen on October 8. The operator cautioned he would be very ORV with his business tasks for the first couple of weeks, at least.

The technician is confident of getting approval and, if so, will probably be on 20 metres SSB on a split basis, having selected the frequencies of 14 183, 14 195 and 14 226 MHz.

It is a case of "wait and see." Unfortunately, due to the lead time of writing for publication, by the time you read this I may all be history or it may not have even commenced!

CHRISTMAS ISLAND — VK9XI

Ron ZLIAMO, was active from Christmas Island in late-September. As VK9XI is a club station, it would be prudent to QSL to ZLIAMO, either direct or via the bureau. There is going to be much confusion as to whether it was Ron's operation or the Club's, particularly by overseas stations who need this area. I wish the Federal QSL Manager, Neil VK6NE, the best of luck.

PITCAIRN ISLAND

Seems Pitcairn will have another amateur soon! Merleida Warren, sat for the examinations recently and is now awaiting a licence.

Congratulations Merleida, and that you are heard on the bands very soon.

Pitcairn Island is becoming quite amateur populated and will have the highest percentage of amateurs per resident-population in the world.

Merleida kindly sent me a book on Pitcairn which gives the history of the island and a number of interesting facts about the area. It is an excellently produced edition, complete with colour cover, and would be a worthwhile addition to the library of anyone interested in the island. Those interested in obtaining a copy may find out further details by writing to Merleida. Allow adequate time for the mail to be received and answered as the shipping traffic is infrequent.

TRACTOR MOBILE

Anyone hearing a station signing VK4FUE/1M would be curious. It has happened. It is a new one to me although I have worked /EM (Equestrian Mobile), /PM (Pecanian Mobile), /TM (Train Mobile); over the years.

VK4FUE is in the sugar-cane area of Queensland and, as he is harvesting, operates /TM. Perhaps OM, you may care to forward a photograph and story for the magazine — it would be of interest to all, I am sure.

SICK LIST

Three well-known DXers have, unfortunately, been hospitalised over the last few months. Arthur VK3UX, John VK3JF and Col VK3WQ, have had their spell of being cared for by the nursing staff of three major Melbourne hospitals. All DXers wish this trio well and a speedy recovery.

COUCH ISLAND

Two operators! Wow, how about that! Well, it is not as good as I sounds because DZ9CL (QSL via ZS6AEN) was only active for eight weeks. But, don't despair as ZD6CK will be operational for two years. Good luck and if in doubt, follow the ANZAC diet, courtesy MCoed by Percy VK3PC, for updates on this rare location. The Net is on both 15 and 20 metres, as conditions permit. Newcomers are more than welcomed by Percy.

NO TIME, BUT STILL OPERATES

A note from Joy VK2EBX, intimates that she has little time to operate, but she picked up a few nice ones over the last few weeks.

One was GB8OC, operational as a special events station from Ashton University, Birmingham.

On 20 metres, the outstanding ones have been KB6CLL, K4GA and AH8AC, with quite a few Pacific Island licenses and a few WA.

It was also lucrative on 40 metres with stations such as 5W1FT, ZL7AA, GB2BJK, and others with weak, but readable signals.

Joy has received a note from Don G3NOF, of the Yeovil Amateur Radio Club, in Somerset (Joy's

QTH is Yeovil). Don, noted that the call GB4OYC was used from October 18-19, to celebrate 40 years of operation.

This club has really got amongst the special calls as, in mid-August they operated as GB2YF (Yeovil Festival of Transport) and GB2MSS (Mid-Somerset Show). The United Kingdom is really allocating a number of special one-off call signs of late, and it is a pity that VKs are not taking advantage of the propagation, combined with patience and tenacity, to pick them up.

Don was awarded the Royal Order of Transatlantic Brass Pounders for 1966/1966, from the RSGB, with the noted commendation of "for outstanding and consistent DX performance." Congratulations from all DXers, Don.

Ladies and gentlemen, DXing is an art wrought with frustration, perseverance and time. Are you a DXer or a listener who very choosy for S&S stations, not in a pile-up?

LISTEN

TP2CE, is hoping to activate this call from 6-7th, this month.

HEARD ISLAND

VKD Heard Island could be heard shortly, if a party was successful landing on the Neils Den, last month. As there is apparently a lot of work to be done, operation could be infrequent, but it is believed one of the Meteorological Department Observers has an amateur licence. Operation therefore, would only be in off duty hours!

It appears that the working-party will leave the island about the middle of January 1966, weather permitting, on the icebird which will be en route to the other Antarctic bases to effect crew changeovers and reliefs.

If you have it confirmed, please refrain from being in the loop with others to have this much needed country confirmed.

NEW CALL

Noel G07AV, is presently using the call sign, 4Z5AVR. Noel is an airline captain and the airways of 457 are not new to him. His present QSL address is 152 Balahenmu Lane, Colombo 6, Sri Lanka.

VINDIC

A number of operators use the call and generally give their own box number for QSLs. If you miss it, do not despair and QSL to the Scientific Centre, PO Box 5864, Baghdad. The cards, which are beautifully produced, were donated by the Family DX Foundation. Remember IRCs, that have been issued within the last two years are only acceptable by the postal authorities in this country.

KERMADEC ISLANDS

Listen for Peter ZL8BY, from this area on the HF bands. Peter hopes to be active as work duties permit. Remember, if he says he is going to have a meal, he means just that. Otherwise, if he is late, he will be a very hungry lad. This is typical of station operators from Meteorological and Antarctic stations. Generally, they do not run a continuous career, unfortunately.

SOUTH SHETLANDS

Apparently, the Uruguay DX Club hopes to activate the South Shetland area early next year. Ricardo CX2CS, is very keen and CX0KY, should be already quite active with a reasonable amount of RF going up the coax. Listen out!

THE BANDS ARE NOT DEAD

Jim VK3VJ, the Australian columnist for 73 magazine, lists maintain that one can work DXCC in a month. Jim has worked:

129B, 39BDL, 3D2MR, 457NMR, 4Z4W, 5B4TI, 5B4UN, 5N5GM, 5W1AU, 5W1FT, 6K08AG, 6Y5NR, 7J1ACH, 7X2OX, 8P6OV, 8P8PT, 9H1EU, 9MBGH, 9V1TH, FK25FU, G3EDM, HL1APR, IT9WVL, J37AH, JIMWIKWZ, KH6GS, KL7J, KX6AO, JSDH, T30AT, T88A, T2AHN, T32BC, V2AA, V6SDU, VE7YL, Y0IBGO, and ZL7AA, to name but a few.

Congratulations Jim, firstly on your column, which is read world-wide because of its excellent standard in giving news about Australia, and secondly on the time you find to work the rare ones, considering your other commitments.

QSLs AND ALL THAT

I had second thoughts about publishing the call sign that Joy VK2EBX, had not received cards from, as it was not my intention to embarrass anyone. It is now glad I did as I have found some of Joy's missing cards and probably a few more for others.

A note from Sam VK2AKR (also 9H1GS and ZB10GS), enlightens the situation. Sam notes: "I occasionally read about amateurs sending cards via the bureau and receiving no answers. One thing to remember is that not all amateurs belong to the society, hence they may not be receiving their cards. It would therefore be prudent to ask an operator if he is okay for cards by this method."

"Another item to remember is that it takes sometimes years before the cards reach the member and then one has to wait higher reply."

"Joy complained about Tony 9H1EU. Tony is a very keen amateur, but unfortunately he is not a member of any bureau, so the chances of him receiving Joy's card is very small and if he does, how is he going to QSL?"

Sam has, or can obtain, cards from most 9H1 and 9H4 operators and is willing to assist, either by a SASE to QTH or by contacting him on the Lakes Forest Amateur Radio Group Net, 3.595 MHz each Wednesday.

Hencarloth, Joy, who Sam has cards for, and others will get their cards in the near future. Thanks Sam, for your insight into the system and your assistance.

HITS AND MISSES

TATA advises that IRCs are not acceptable in Turkey! I! Do not forget the best photograph of your shack and a little about yourself for next year's issues of Amateur Radio and a chance to win the \$VR Bridge lined, donated by GFS Electronics. J40MAR was Rudi J45RTT, operating from (SHR) Kos Island. "MAP" stands for Medical Assistance Radio, — VEOBAB was operational MM from a Coastal Vessel and does not count as a DXCC country. — Krishna signing from Nepal, is a rapid QSLer. Apparently, he is running a 751 to a tribander and is the only one taking in either Morse code or the VLF band in this vastly populated country, where the hobby has not really been recognised as yet. — Frank ZF1QC is the only station operational on packet radio from the Cayman Island Group. QSL to VE4XN — Mount Athos operations still in the air. Why? is the big question, it is more than the documentation? — OH7IPB72 was due to go QRT at the end of last month. — Many countries are getting organised on the WARC bands.

Although other Regions only encourage CW and Narrow Band modes, have you heard or worked them? — Amateur radio could unfortunately be a "No-No" again in Uganda. — 3G6 no — It is not a typographical error. The call sign 3G9BBY will be heard from Yelco located in the Antarctica from December 5 for five weeks. The operators are CEs who promise modes such as CW/SSB/RTTY and AMTOR on all bands from 160 metres through to 10. — Thindale Island has its share of operators in October. Hope that the large number of VKs in need of this area for a "new one" made it. — Luiz 9BZLB is still active spasmodically but is very quick on 50 metres and 100 metres. QSL via EA5QZ to make a contact. — K1man signing as XU3SS has been reasonably active again, generally 1300-1400 UTC. — CV1R was activated by the Radio Club de Maldonado and located on the Isla de Lobos. — EF6RCD was a special call used to activate Formosa Island. The station was active on 50 metres and 100 metres. — Carlos VQ9QA is active until mid-March, with hopes of operation on 160 metres. — Akito JASQDH will sign NN7S until December 5, after hoping to sign as KX9XX at the end of November. QSL to JASDQDH. — USSR amateurs gained access to the use of 10 MHz as from October.

CLOSURE

A Happy Christmas to all and the best in health and happiness for 1967, from this QTH to yours. Do not eat too much Christmas Pudding and the trimmings, as the Ross Hull Contest needs your support. And most importantly, do not forget to send in your log!

The deadline of these notes for the February edition is December 29. In other words, there is no time for a columnist to make his errors, and please do not forget the Best Looking Shack Competition commencing next month.

In closing, a couple of "gems" from Lee KH6BZF Editor of the weekly propagation publication *KH6BZF Reports*. "when you retire you are in control of one of the most powerful work tools—tomorrow!" and "... you know you are getting older if you run into a girl you once knew and it is her daughter!"

THANKS

Sincere thanks since I have been writing this column, and particularly over the last year, to the editors of weekly, bi-weekly and monthly publications such as *ARRL Newsletter*, *DARL CO-ORD*, *The DX Family Foundation Newsletter*, *Inside DX*, *The W6GCKB-HQ DSL Manager List* (in mail) for all DXers; *KH6BZF Reports* (for those interested in propagation and humorous quips, not to be missed); *Long Island DX Bulletin*, *Papikura Radio Club Bulletin* (which has an editor with a sense of humour); *DRZ DX* (with Bob W6GVE, a freelance editor who never seems to rest); *RSGB DX News* (a valuable publication); and the *Westlake Amateur Radio Club Newsletter*.

Magazines including *Break in*, *cqDX*, *DX Post*, *JA CQ*, *JARL News*, *KARL News*, *QST*, *Police Ltr*, *RadCom*, *Venue*, *Weather News* and *Worldradio* (to mention but a few). Individual contributors this month include JH1KRC, JP1LAB, W4FRU, W6GRI, W6ZK, ESK, 3PA, XV, YL, YL, 6NE, Z1, 11 AMN and AMN and Christa Schucke.

To all contributors, your assistance, advice and information have been greatly appreciated and invaluable. Sincere thanks to one and all for Jan 1987 is a year of health, peace, prosperity and plenty of the DX we all need.

—73, Ken VK3AH

"Bought an absolute bargain at the Field Day OM — although I haven't found out what it is yet?"

—VK2COP



—VK2COP

HISTORICALLY SPEAKING

Following is a portion of a dossier, containing hundreds of newspaper clippings, compiled by George Palmer VK4ZG and contributed by Jim Davis VK7CW. Jim is a historian of some note and has the original Carlton Reisz microphone used by Broadcast Station 7UV, in his microphone museum. He also has a private cinema with many restored cinema projectors, a complete 1927 "Talkie" system and Disc No 7 which was played in conjunction with reel one of the Warner Brothers 1927 movie, "The Jazz Singer".

George Palmer was the founder of Broadcast Station 3AK in Melbourne, and in 1933, he bought 7UV Universal, Tasmania.

At the age of 17, George was the youngest film producer in the world. In 1927, he made the film *The Northbound Limited*, an express train drama in which he performed all the stunt work.

In early 1935, the PMG's Department approved a substantial power increase for 3AK. As a result of this power increase it was necessary to build new equipment to the station could serve the Victorian listeners in the same efficient manner as other Melbourne B class stations. The wavelength of 200 metres however, remained unaltered. The station was located at 116 Queen Street, Melbourne, and was in its fourth year of operation.

During the early years of radio, when amateurs were allowed to transmit music on the lower end of the broadcast band, some difficulties were encountered by the amateurs and broadcast stations.

From Broadcasting Business, March 8, 1935.

"Following an alleged statement of Mr Brown, Director of Postal Services, and published in the Melbourne 'Sun-Pictorial' on Saturday, 23rd February, there has been some discussion in Melbourne broadcasting circles as to what constitutes a 'B' station.

"The 'Sun' paragraph read as follows: 'So as not to interfere with station 3AK, three or four amateur broadcasters in Balwyn district have been told by the Postal Department to remain off the air, said the Postal Director (Mr Brown) yesterday.

"There is no general exclusion of amateurs. Station 3AK, while not a recognised 'B' class station, broadcasts regularly late at night and at certain hours on Sunday.

"The words 'Station 3AK while not a recognised B

station caused us to investigate the position and the following statement was made by Mr C F Palmer, Managing Director of 3AK.

"The statement in the 'Sun' that 3AK is not a recognised B class station is a most unwarranted and harmful one. 3AK is licensed as a B class station by the PMG's Department and is now in its fourth year of service, paying from its very inception in 1931 the same licence fee as other B class stations. It also operates on its own wavelength independent of all other Melbourne stations, and the only distinction between the other stations in that its authorised hours of service are restricted.

"Mr Brown's remarks that certain amateurs in the Balwyn district must remain off the air so as to avoid interference with 3AK also conveys another wrong impression, as there are still certain times when experimental stations in this district and elsewhere could continue, so why penalise three or four amateurs when all that is necessary is a simple re-arrangement of their schedules?

"Inquiries at the Postmaster-General's Department failed to determine whether the Department considered whether 3AK was a recognised B station or not.

"The fact of the matter is that there are no B stations and on that score the statement is false. There are three divisions of Australian broadcasting stations: the National stations, the licensed stations and the amateurs.

"3AK is most decidedly not a National station and considering that it pays the same licence fee as the other licensed stations, it may safely claim to be a recognised licensed station.

"Owing to its looseness, a misconception about 3AK can be caused and it is rather surprising to see such a statement allegedly emanating from the PMG's Department. If, on the other hand, such a reference was not made by the PMG, then it is loose and harmful reporting.

The amateur stations affected in the above were 3BT, 3OV, 3OV, 3TM, 3KE, 3XL and 3CR.

No doubt the matter was eventually resolved amicably between all parties.

On April 20, 1935, 3AK operated from 12.30 pm to 2.30 pm, then from 10.00 pm to 12.00 midnight.

—Information compiled from the following 1935 newspaper: THE AGE, Melbourne. BROADCASTING BUSINESS, Sydney. LISTENER IN, Melbourne. AMATEUR RADIO, Melbourne. WIRELESS WEEKLY, Sydney.

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RF AEROSPACE SAT 200 GR

SPECIFICATIONS	2 Metre Amateur Band
ELEMENT NUMBER	100-1000 MHz
FREQUENCIES COVERED	Grid Type II Element
REFLECTOR TYPE	Radial Element
DRIVEN ELEMENT	Parabolic Dipole Type
DIRECTIVITY	Less than 1.5:1
VSWR	Less than 1.5:1
MAXIMUM POWER	Vertical - Horizontal
POLARIZATION	30 MHz at less than 2:1
BANDWIDTH	11.5 dBd Measured
GAIN OVER A 1/2 WAVE DIPOLE	Greater than 15 dB Measured
FRONT TO BACK AT CENTRE	Greater than 15 dB Measured
FREQUENCY	6 plane 10-14 Plane 2:1
REFLECTOR TO BACK AT CENTRE	Approx 1 metre at 10-14 Plane
CONNECTION	Cable terminated with a 50 Ohm Plug

WIND TOLERANCE

BOOM AND ELEMENT CONSTRUCTION

600 Aluminium Alloy

RF AEROSPACE SAT 100 GR

SPECIFICATIONS	70 cm Amateur Band
ELEMENT NUMBER	100-1000 MHz
FREQUENCIES COVERED	Grid Type II Element
REFLECTOR TYPE	Radial Element
DRIVEN ELEMENT	Parabolic Dipole Type
DIRECTIVITY	Less than 1.5:1
VSWR	Less than 1.5:1
MAXIMUM POWER	300 Watts
POLARIZATION	Vertical at 10-14 Plane
BANDWIDTH	30 MHz at less than 2:1
GAIN OVER A 1/2 WAVE DIPOLE	11.5 dBd Measured
FRONT TO BACK AT CENTRE	Greater than 15 dB
FREQUENCY	6 plane 10-14 Plane 2:1
REFLECTOR TO BACK AT CENTRE	Approx 1 metre at 10-14 Plane
CONNECTION	Cable terminated with a 50 Ohm Plug

WIND TOLERANCE

BOOM AND ELEMENT CONSTRUCTION

600 Aluminium Alloy

RF AEROSPACE SAT 100 Y

SPECIFICATIONS	2 Metre Amateur Band
ELEMENT NUMBER	100-1000 MHz
FREQUENCIES COVERED	Grid Type II Element
REFLECTOR TYPE	Radial Element
DRIVEN ELEMENT	Parabolic Dipole Type
DIRECTIVITY	Less than 1.5:1
VSWR	Less than 1.5:1
MAXIMUM POWER	300 Watts
POLARIZATION	Vertical at 10-14 Plane
BANDWIDTH	30 MHz at less than 2:1
GAIN OVER A 1/2 WAVE DIPOLE	11.5 dBd Measured
FRONT TO BACK AT CENTRE	Greater than 15 dB
FREQUENCY	6 plane 10-14 Plane 2:1
REFLECTOR TO BACK AT CENTRE	Approx 1 metre at 10-14 Plane
CONNECTION	Cable terminated with a 50 Ohm Plug

WIND TOLERANCE

BOOM AND ELEMENT CONSTRUCTION

600 Aluminium Alloy

RF AEROSPACE RD 305 Y

SPECIFICATIONS	2 Metre Amateur Band
ELEMENT NUMBER	100-1000 MHz
FREQUENCIES COVERED	Grid Type II Element
REFLECTOR TYPE	Radial Element
DRIVEN ELEMENT	Parabolic Dipole Type
DIRECTIVITY	Less than 1.5:1
VSWR	Less than 1.5:1
MAXIMUM POWER	300 Watts
POLARIZATION	Vertical at 10-14 Plane
BANDWIDTH	30 MHz at less than 2:1
GAIN OVER A 1/2 WAVE DIPOLE	11.5 dBd Measured
FRONT TO BACK AT CENTRE	Greater than 15 dB
FREQUENCY	6 plane 10-14 Plane 2:1
REFLECTOR TO BACK AT CENTRE	Approx 1 metre at 10-14 Plane
CONNECTION	Cable terminated with a 50 Ohm Plug

WIND TOLERANCE

BOOM AND ELEMENT CONSTRUCTION

600 Aluminium Alloy

RF AEROSPACE RFA 20 CMVCP

SPECIFICATIONS	70 cm Amateur Band
ELEMENT NUMBER	100-1000 MHz
FREQUENCIES COVERED	Grid Type II Element
REFLECTOR TYPE	Radial Element
DRIVEN ELEMENT	Parabolic Dipole Type
DIRECTIVITY	Less than 1.5:1
VSWR	Less than 1.5:1
MAXIMUM POWER	300 Watts
POLARIZATION	Vertical at 10-14 Plane
BANDWIDTH	30 MHz at less than 2:1
GAIN OVER A 1/2 WAVE DIPOLE	11.5 dBd Measured
FRONT TO BACK AT CENTRE	Greater than 15 dB
FREQUENCY	6 plane 10-14 Plane 2:1
REFLECTOR TO BACK AT CENTRE	Approx 1 metre at 10-14 Plane
CONNECTION	Cable terminated with a 50 Ohm Plug

WIND TOLERANCE

BOOM AND ELEMENT CONSTRUCTION

600 Aluminium Alloy

RF AEROSPACE RFA 20VCP

SPECIFICATIONS	70 cm Amateur Band
ELEMENT NUMBER	100-1000 MHz
FREQUENCIES COVERED	Grid Type II Element
REFLECTOR TYPE	Radial Element
DRIVEN ELEMENT	Parabolic Dipole Type
DIRECTIVITY	Less than 1.5:1
VSWR	Less than 1.5:1
MAXIMUM POWER	300 Watts
POLARIZATION	Vertical at 10-14 Plane
BANDWIDTH	30 MHz at less than 2:1
GAIN OVER A 1/2 WAVE DIPOLE	11.5 dBd Measured
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REFLECTOR TO BACK AT CENTRE	Approx 1 metre at 10-14 Plane
CONNECTION	Cable terminated with a 50 Ohm Plug

WIND TOLERANCE

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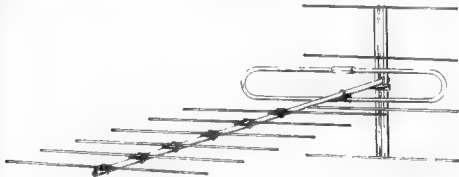
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SPECIFICATIONS:

Band..... 2 Metre Amateur Band
Element Number..... Eight
Frequency Covered..... 140 - 150 MHz
Reflector Type..... Grid Type (tel)
Driven Element..... Folded Dipole
Directors..... Parasitic (Dipole Type)
Input Impedance..... 50 Ohms
VSWR..... ≤ 1.30
Max.Power..... 100 Watts

Polarisation..... Vertical or Horizontal
Bandwidth..... 10 MHz at $\pm 2\%$
Gain over $\lambda/2$ Wave Dipole..... 13.6 dB Measured
Front to Back at Centre Frequency..... Greater than 35 dB Measured
Side Rejection at Centre Frequency..... Greater than 65 dB Measured
1/2 Power Beam Width..... E plane = 17° H plane = 23°
Construction..... Approx 2Meters RG213 Coax Cable,
Terminated with a 'N' type female plug.
Wind Tolerance..... 160 KMH (100 MPH)
Beam & Element Construction..... 6063 Aluminium Alloy.



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Contests



Ian Hunt VK5QX
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CONTEST CALENDAR

- DECEMBER**
- 5-7 ARRL 160 metre CW Contest (Rules this issue)
- 13-14 ARRL 10 metre Contest (Rules this issue)
- 13 Ross Hull Memorial VHF Contest commences (Rules November issue)
- JANUARY**
- 1 UBA SWL Competition (Continues to December 31, 1987)
- 5 Ross Hull Memorial VHF Contest concludes
- 23-25 CQ WW 160 metre CW Contest
- 31-1 YL ISSB CW Contest
- FEBRUARY**
- 1 YL ISSB CW Contest (concludes)
- 7-8 CQWA CW QSO Party
- 14-16 YL YL-OM Phone Contest
- 20-22 CQ WW 160 metre SSB Contest
- 21-23 ARRL DX CW Contest
- 21-22 YL ISSB Phone Contest
- 28-30 YL YL-OM CW Contest
- MARCH**
- 2 ARRL DX Phone Contest
- 7-8 CQWA Phone QSO Party
- 14-16 John Doyle Memorial Field Day Contest
- 28-29 CQ WW WPX SSB Contest

There certainly seems to be plenty of action available to those interested in contesting during the next couple of months, be it either phone or CW, OM or YL operators. I trust that you will enjoy it.

Well, once again we come to the end of another year. The time certainly does seem to fly past. Looking back over the last 12 months, I find that generally I can feel satisfied that contesting in Australia has been on a fairly sound footing. As Federal Contest Manager I know that I cannot please everybody as we all like to go. I have, however, tried to bring about improvements in contests without doing so in a radical way. Change can, undoubtedly, be a very good thing at times. Change, just for the sake of change, is a pointless exercise. I feel that more can be done to improve contesting within our area of operations, as well as throughout the world of amateur radio in general. I will be making some recommendations to the next Federal Convention in 1987, as well as possibly leaving suggestions for my successor later in the coming year to think about. Meanwhile, I will watch with interest to see whether or not major changes will need to be made to the Ross Hull Contest format, whether we see an increase in CW operation in contests, whether more novices will begin to participate in contests. It will also be interesting to see how well the combining of our Field Day and Remembrance Day Contests with like events in New Zealand, will work out. Thus, I do look forward to the coming new year with anticipation and with enthusiasm. Traditionally, at this time, we do contemplate the past and look forward to the future. I would wish for us all, that the future will be one of happiness and peace.

Just recently I attended a most moving presentation held at dawn in the parklands bordering the City of Adelaide. On a particularly beautiful and clear morning, a group of young children, all dressed in white, gathered together representing the Rising Generation. They had brought with them, written messages which were to be attached to gas filled balloons. These messages were about such things as peace and love. Certainly a very fitting approach with the International Year of Peace, which is fast coming to a close. The themes chosen were Faith, the Divine Nature of Mankind, Individual Worth, Knowledge, Choice and Accountability, Good Works and Integrity. Each of these subjects, I would, believe are such that our Amateur Radio Fraternity would wish to apply such principles in our activities. These

young women were sending their messages attached to balloons in the hope that they would be found by someone and their messages read and understood. Likewise, we, as radio amateur operators send messages. We have the benefit that in an instant we usually know if someone has received our messages.

I would like to think that as we send out messages in the new year and the years to come, we too might carefully consider our fellow man and try and make sure that our messages are ones which will be of help in building a better, happier, more peaceful and tolerant world. Goodness knows, we constantly claim the role of being International Ambassadors of Goodwill, so let us not just think of this only at Christmas time but rather make a firm determination to try to follow this idea at all times. Let this not be only on an international level either, but also apply it to our relationship with the amateur around the corner, our Divisional Council, club officers and members as well as our workmates, non-amateur friends and neighbours and particularly our families. I am sure that we can be a force for good in the world with our association with such a marvelous hobby as amateur radio.

I would like, at this special season of goodwill to express to all, wishes from both my wife Sylvia and myself for a very Happy and Blessed Christmas and for a Peaceful and Successful New Year.

—73 de Ian VK5QX

REMEMBRANCE DAY CONTEST — 1986 CONGRATULATIONS TO THE VK4 DIVISION

Below you will read the full results of the Annual Remembrance Day Contest for 1986. The VK4 Division, I am sure will be most pleased to receive the trophy at the 1987 Annual Federal Convention. The last time that Division won the contest was in 1971, so one can see that there has been quite a drought for VK4. It may interest you to know just how many times the trophy has been won by each Division. Here are the details.

VK1 — 2; VK2 — 3; VK3 — 1, VK4 — 4 (including 1986); VK5 — 14; VK6 — 8; VK7 — 7

Here are a few more statistics regarding the 1986 contest.

DIV	No LOGS/No LICENSEES	ENTRIES PERCENT
(Listed in order of participation percentage)		
VK1	55/302	18.2
VK8	120/1439	8.34
VK5	121/1174	8.82
VK7	33/589	5.62
VK9	61/73	3.48
VK4	86/289	3.40
VK2	133/448	2.92
VK3	83/455	2.03

Average Points per Log by Division (listed in order of average score)

VK5	15638/121	129.23
VK1	6324/55	114.98
VK7	3719/33	112.60
VK8	13400/120	111.86
VK3	10367/83	111.47
VK9	9748/69	109.77
VK2	13788/133	103.24
VK6	283/5	43.83

The formula for determining the winning Division in this contest has been changed a number of times as has been the method used for scoring contacts. I am quite convinced that simply scoring one point per contact is the right method and I can provide comment to support this premise, however, I am far from convinced that the method of derivation of the formula determining the final

result is what is really required. In a later issue, I will provide more comment on this subject with a view to stimulating discussion at the next Federal Convention. Meanwhile, it is good to see the trophy begin to change hands on a more frequent basis.

Amongst the individual results of the Remembrance Day Contest, you may note the entry from M Rayner in the SWL Section — VHF. This was really an effort worth commenting on. Matthew is located in the Canberra area. To log the total number of 804 contacts on VHF from that location is certainly a terrific effort, and I note from Matthew's log that, on quite a few occasions, he was logging at a rate of up to five contacts per minute. I know, as a fairly experienced contest operator, that it does require quite a deal of concentration to maintain a contact rate of four per minute and upwards. I imagine that Matthew obtains his call sign and comes on the air as he contestes on the transmitting side of things. He will probably give quite a few of us a fair run for our money!

The standard of logs generally was fairly good, as referred to in my column in November, however, I would again plead with the minority of entrants to please read the rules for contests thoroughly before submitting logs. Different categories/sections etc., in most contests, usually mean separate log entries, and by separate I mean — totally separate logs, declarations, and summary sheets are required.

Two logs were received well after the due date. One from VK6 had been mailed to Express Courier on Saturday evening, date September 28. Australia Post, in a valiant effort to ensure that the posted article was delivered in accordance with the best traditions, had attempted to deliver the package to the WIA rooms at the Thaburnton Council area. These rooms are only attended when meetings take place at the Divisional level. As the "mail" had taken this action, I am sure, in good faith rather than just deposit the package in a post office box. This is the second occurrence of this nature to my knowledge in close to three years. The message is: Do not send your log so late that it needs express action for it to arrive on time. Do not use Express Courier unless you are sure that the item can be properly delivered in person. One other log was sent to the Federal Office by a VK2 operator instead of being sent to the correct address for the FCM.

You may have been surprised to see the results of the contest published as early as December. There are at least four reasons for this. Firstly, I have had just a little more time available to carry out the log-checking, etc. Secondly, I felt that I really had to do something to make amends for somewhat of a mistake made last year under extreme pressure (Recover my good name if any, so to speak).

Thirdly, I have now had somewhat more experience at handling the Remembrance Day Contest and thus was much better organised. Fourthly, and by no means of least importance, I had available to me an excellent computer facility to help in compilation and listing of the results. This latter aspect certainly made my task a great deal less onerous and accounts to a large extent to my speed in which the results can be produced. I still do not have my own computer and tend to feel that in contest logging, I would be slowed down somewhat by the use of a computer as against my manual logging and checking methods used while I operate. Even so, I hear others telling me that computer logging for contests make things so much easier, so I must hope that one day I will have to weaken and try it out in practice. (I find it hard to let go to a well tried and proven system though).

Now for some comments from entrants in this year's contest.

How about a few words of gratitude for the stationmen, or maybe operators, who for weeks, or even months, have left the log on my Sanyo for me but two months I could not have been more grateful (VK1PJ).

(I confess heartily, PKJ. However, I must do something to show my appreciation for the help at the time. I have consumed them and have to leave the transmitting location at most frequent intervals).

The stationmen of other stations in this year contest were very co-operative and pleasant - VK3DGS.

Sorry that I have not included a duplicate sheet, however I have thoroughly checked the times. I will do better with the logs next year. A most enjoyable contest - VK2ZCZ.

I had a memory chip failure which, in turn, damaged a data buffer chip. - another Murphy being about with half-baked contests - VK2ZCZ.

Thank you for the time and the effort you put in as the Contest Manager - (VK2VFC).

Met with a number of regular RD Contest Operators: 581, ZAPR 50X etc. I have never met them outside the RD Contest - to me it's the fun of the fair digging the weak side of the GRM. Fortunately, there are some gentlemen operators about, than the other kind. It's rendering a report again next year. But hope to 'work' for me the policy 10 hours I was able to operate for this year - VK4AEV.

I do operate regularly on the bands every week. They say I keep my station in shape for contests - (52X).

This is the last batch of logs. I understand some people sent theirs in direct. I don't envy your current task. 3 hours was just them - Christine VK6LZ2.

Chetive - enjoyed this contest and I think the two hours between VHFHFVHF contacts is a far better idea than last year - VK3KBL.

I missed about an hour late on Sunday afternoon because the guys from Melbourne came down from the mountain where they had been installing the Perseus two metre repeater - VK3DGS.

(Where on earth is the WLA, through you, having such a wonderful event - VK3XJZ for VK3VPP, VK3JZD, P and VK3JXZ).

Good luck with your efforts and I hope you don't have too many late nights - WLA-130371.

The novice holders seemed to be a bit thin this year and I did not work one on CW - VK2COP.

I entered the old-fashioned transmitting section of the contest, however I did work some stations on CW - VK3BW2.

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...another time event. I operated my own station (VK4BRL) from my home QTH and the District Association Station VK4BAA from Baden Powell Park. I found the courtesy on air at all times magnificent, as we were directed at VK4BAA for encouraging comments to us from time to time. Our main reason for putting VK4BAA on the air was not only our support for the contest itself, but also as a means of showing our appreciation of the WLA for their support shown us since the inception of JOTA. We hope to take part again in 1987 - VK4BRL.

Dear OM, my weekend was very well organized until Saturday evening when I had a cold. I had some sleep before retiring. Next year, I'll have some sleep before the demolition is on another weekend, and get someone to fill for me in the Church Choir - VK4VRO.

It was a nice coincidence to see you on each of the three bands which the club station worked. We enjoyed the contest very much - VK4AOR for VK4BTLT.

Just a short note to say just how much we enjoyed the contest. Many thanks for running it. On VHF things were a little slow, on HF conditions were good and there were some stations to work - VK3DGS and VK3VJQ.

We would be thankful to the WLA, through you, having such a wonderful event - VK3XJZ for VK3VPP, VK3JZD, P and VK3JXZ).

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INDIVIDUAL SCORES BY DIVISION

VK1 DIVISION											
HF Phone											
VJL	645	100	200	1DW	80	1VB	21				
1PP	305	12L	178	1BAT	68	1KED	20				
1L	248	18T	154	1KV	64	1KD	20				
1WGO	238	18H	139	1KCM	52	1GB	15				
1W	210	1TD	95	1K1	30						
1VR	212	1BEE	82	1KCD	23	1KEN	10				

POINTS SUB-TOTAL 3157

VHF Phone											
1ZAR	301	1KRM	1221	30ZB/H	74	1CD	39				
2TR	280	2ZJR	121	1BAT	62	1ST	36				
2JL	244	2BMZ	157	2TF7	70	2AV	30				
2ZDX	214	2ZL	110	2LF	59	2MX	28				
1WX	208	1PP	90	1BEE	55	2EV	21				
1ACC	208	1OK	88	1GB	52	1VR	23				
10AP	190	1TD	84	1CO	44	1KED	20				
7ZNP1	180	1KV	80	1WI	42						

POINTS SUB-TOTAL 3187

TOTAL POINTS VK1 DIVISION 6324

VK1 DIVISION

HF Phone											
2KL	851	2NW	1821	2IV	78	2TR	32				
2PFR	562	2RE	159	2JA	70	2BDT	32				
2ZC	444	2BMZ	157	2TF7	70	2AV	30				
2DCL	450	2PN	134	2COP	65	2SCH	30				
2DUVU	405	2AHV	130	2MT	64	7GQ/2	28				
2BAM	380	2DJA	130	2WT	62	2PU	26				
2W	328	2H	120	2PV	60	2OC	25				
2BLN	327	2CDG	120	2MUD	58	2SA	25				
2YVPP	321	2ZL	111	2C-H	56	2AHA	24				
2AQA	317	2ELB	111	2DSM	56	2PC	23				
2AQA	317	4AD/2	109	2DM	55	2BZ	21				
2AGB	311	2AMK	109	2C-N	53	2LEP	21				
2JMU	298	2CKW	102	2CF	51	2MUZ	21				
2AMU	248	2BDN	101	2NV	50	2DHH	20				
2VU	245	2NHK	101	2PU	50	2CFU	19				
2BGS	238	2BZ	100	2ZC	50	2ZC	19				
2PS	231	2EXA	95	2AL	48	2DCH	18				
2ARQ	220	2PKW	93	2RX	44	2GXK	15				
2PMH	218	2HT	89	2CKX	40	2PL	15				
2ZC	217	2AMK	90	2ZC	40	2ZC	15				
2UM	202	2ABC	81	2KA	39	2AIM	14				
2BIP	200	2DOP	81	2BHO	35	2AIX	14				
2AGF	182	2AIC	80	2E2B	35	2EMU	14				

POINTS SUB-TOTAL 11587

Check Log received from VK3BLT

HF CW

2C	148	2ACF	81	2PYM	58	2UM	37				
2CK	135	2GT	79	2SU	52	2DOL	30				
2BAT	121	2DXB	67	2EXN	50	2ED	26				
2EL	108	2AZR	62	2VM	48	2CQG	21				
2W	96	2CVS	50	2ZC	48	2JL	18				
2DOP	96	2OL	58	2TR	41	2FNR	15				

POINTS SUB-TOTAL 1543

VHF Phone

2DFY	139	2BOT	42	2BAM	25	2ZL	11				
2HT	100	2EY	35	2AIC	22	2XJ	10				
2ZJX	80	2ZS	30	2BUT	15						
2ZC	64	2CZT	37	2ZC	30						
2ZRE	44	2BZ	25	2E2B	13						

POINTS SUB-TOTAL 866

Check logs were received from VK2s KFV and APP

TOTAL POINTS VK3 DIVISION 13798

VK3 DIVISION

HF Phone											
3DE	388	3AVF	1551	3JA	90	3DP	40				
3M	383	3DGO	148	3DPI	71	3PIZ	36				
3Z	380	3AMU	140	3DVT	71	3AMW	30				
3YH	344	38HU	134	3DMM	60	3VOU	28				
3BHZ	309	3QF	126	3PDW	56	3BIL	25				
3BZ	307	3ZC	106	3BEE	49	3D5	24				
3BAG	221	3AGJ	125	3ZT	54	3BKU	20				
3AVV	218	3ABP	120	3CFI	54	3N	19				
3FV	215	3CX	115	3BIL	53	3DOU	12				
3ZC	212	3ZC	106	3BEE	49	3D5	24				
3KU	208	3PRN	103	3AMU	47	3GBB	11				
3XF	198	3CLS	100	3PTR	47						
3SM	181	3KMA	91	3KCT	48						

POINTS SUB-TOTAL 8223

Check logs received from VK3s ALD and CAI

HF CW

3DGO	160	30VV	83	3AMU	70	3PJ	35				
3XB	158	3COP	91	3CAL	43	3BMO	35				
3NKL	132	3DG	89	3JFC	42	3YK	23				
3KS	100	3BDH	82	3AL	42	3BKU	19				

POINTS SUB-TOTAL 1218

1986 REMEMBRANCE DAY RESULTS

The formula for determination of results for each Division is: Total Points/Total Divisional Licensees X Weighting Factor

VK1	6324/ 302	x	1.1	23.03
VK2	13798/4557	x	7.5	21.18
VK3	10252/4559	x	5.9	13.27
VK4	9788/2619	x	8.2	23.17
VK5	15638/1774	x	1.4	12.34
VK6	13400/1438	x	1.5	13.68
VK7	3719/ 587	x	2.2	13.94
VK8	283/ 173	x	6.2	6.42

VHF Phone	3K3CZ	455	132Z	122	35M	76	3ADW	31
3K3VW	450	30DM	118	3AVV	54	3ACM	25	
3K3NY	212	33UP	17	3PL	47	3XVZ	25	
3K3BO	71	30GM	14	3SCD/P	44	3MRZ	24	
3K3GS	135	3DNN	102	3KCT	40	3BGB	13	
3KMA	143	3YRP	100	3CLS	34	3YMW	12	
3YFZ	123	3BBI	94	3BLI	33			

POINTS SUB-TOTAL 2926

TOTAL POINTS VK3 DIVISION 10367

VK4 DIVISION

VHF Phone	4WIT	461	4JM	181	4AKK	100	4ES	30
4LT	42	4JF	178	4NDG	90	4AAD	30	
4BTB	421	4BGS	175	4BKM	87	4AGL	26	
4YX	414	4IR	166	4AMH	77	4RC	24	
4SHB	306	4CX	162	4VAT	86	4UB	22	
4BAY	286	4ISA	152	4FX	65	4ADY	22	
4AEV	276	4OD	131	4BCH	61	4AMU	20	
4WIZ	275	4B F	123	4NBL	58	3N/V4	19	
4AEM	271	4STW	120	4AOE	57	4EV	15	
4NW	252	4ACM	118	4YH	53	4AGS	15	
4VR	241	4BRS	116	4ADC	53	4UJ	14	
4YG	236	4A	117	4CZ	50	4AOR	13	
4AOD	233	4FRM	116	4BSA	50	4LF	12	
4ADH	211	4BZB	100	4AW	47	4LU	11	
4BJA	202	4ACC	100	4NWX	42	4ZN	10	

POINTS SUB-TOTAL 7826

HF CW									
4XW	157	4CI	83	4BRZ	80	4VAT	26		
4QY	104	4SF	80	4YG	60	4ACZ	24		

POINTS SUB-TOTAL 814

VHF Phone	4ZBV	206	4 SA	79	4ZCC	43	4RX	19
4YJF	154	4ADC	63	4UJ	38	4GT	17	
4ZAL	145	4YEA	62	4UB	28	4KZX	17	
4AOD	118	4AVR	48	4Y	20			
4WIZ	94	4BZB	48	4KU	20			
4VR	90	4UJ	43	4BNL	20			

POINTS SUB-TOTAL 1348

Check Log received from VK3NVI4

TOTAL POINTS VK4 DIVISION 9788

VK5 DIVISION

5BX	804	5BRS	177	5SG	70	5KBY	37
5ADD	601	5AGP	155	5NWT	70	5TP	36
5BBI	570	5AJS	153	5CV	69	5ALJ	35
5GD	550	5WO	140	5KMH	68	5AIB	31
5BU	513	5XK	131	5ANW	67	5BO	30
5ATU	430	5NQP	115	5KXC	65	5AM	30
5AYD	428	5NF	112	5VY	62	5OM	27
5ZM	425	5AX	106	5PKW	62	5PF	25
5ATC	407	5OX	106	5TL	60	5YX	25
5AJK	325	81	105	5AIF	60	5ADV	25
5NOD	291	5R	100	5BMT	54	5ABY	21
5BU	243	5KV	100	5NDB	51	5OB	20
5X1	233	5ACW	100	5TZ	50	5ZE	20
5BWZ	228	5BVR	97	5AMF	50	5LC	18
5NMR	228	5S	92	5CIR	47	5KLT	15
5AH	210	5NTX	91	5UJ	46	5VO	13
5AAC	210	5EA	88	5RK	44		
5APC	201	5GV	82	5NB	42		
5GZ	180	5TW	75	5BWG	41		

POINTS SUB-TOTAL 10094

Check logs received from VK5A ADC and AWG

5UM	179	5FX	74	5AU	30	5BWZ	12
5AGX	176	5ADX	72	5JG	17	5BS	11
5GZ	118	5PF	35	5AYD	17		

POINTS SUB-TOTAL 741

Check log received from VK5RK

5KXC	380	5KIA	157	5OR	87	5ZAH	39
5AKK	351	5RV	136	5TZ	73	5TC	31
5APC	273	5ADC	134	5AVQ	67	5UE	26
5APA	246	5R	111	5AWH	55	5FX	24
5ADZ	230	5ALJ	104	5ZBC	53	5ADV	14
5AAC	204	5EA	100	5YX	48	5IR	12
5SS	201	5ACW	100	5KBY	46	5ZKK	12
5ZHB	170	5BMT	100	5IN	44		
5ANW	164	5KMH	92	5AIB	44		
5OZ	163	5AM	90	5KCI	40		

POINTS SUB-TOTAL 4203

Check log received from VK5BWZ

TOTAL POINTS VK5 DIVISION 15638

VK6 DIVISION

HF Phone								
6VA	573	6RZ	105	6FC	50	6RW	24	
6BD	500	6CX	104	6GF	50	6SA	24	
6ED	301	6HAR	102	6RU	50	6AP	21	
6RG	335	6WT	97	6ARD	45	6BO	21	
6VS	284	6ACN	97	6SI	44	6OM	21	
6AD	213	6ANC	91	6ABR	40	6OW	20	
6ZO	212	6KV	84	6UX	39	6MA	18	
6YS	206	6ON	80	6AEE	39	6MB	18	
6RU	170	6TO	72	6KJO	38	6OV	15	
6MB	168	6KY	65	6HT	33	6CWN	14	
6OD	159	6LW	65	6CS	32	6AD	13	
6FP	147	6CR	58	6YF	31	6YE	13	
6DA	142	6NMA	55	6AV	30	6YL	13	
6AEA	123	6WMA	52	6KBL	28	6EF	11	
6LZ	108	6PV	51	6RU	27	6RSU	11	

POINTS SUB-TOTAL 5774

Check logs received from VK6A AR and ME

6AFW	119	6AQ	60	6BT	31	6BE	16
6AJ	86	6RF	47	6CI	27		
6RU	83	6SM	44	6YS	20		

POINTS SUB-TOTAL 613

VHF PHONE								
6YS	495	6RO	190	6AMB	104	6CR	41	32
6XS	406	6FC	175	6ZT	104	6RPV	32	
6CZ	353	6ZAP	175	6ML	101	6ON	31	
6LZ	343	6ARD	166	6ANI	100	6AWE	29	
6PR	341	6HWHP	146	6AO	94	6W	29	
6ABR	280	6ACN	135	6FE	81	6BO	29	
6AR	271	6ANC	131	6CWN	81	6GA	18	
6OD	266	6ZGP	122	6RBL	71	6DC	15	
6PV	215	6TO	120	6SI	65	6UT	14	
6WMA	203	6EV	118	6RU	53			
6AD	203	6AEA	106	6CU	49			
6WZ	196	6NE	105	6EB	44			

POINTS SUB-TOTAL 7098

VHF CW (RTTY)

SABR 15

POINTS SUB-TOTAL 16

TOTAL POINTS VK6 DIVISION 13400

VK7 DIVISION

VHF Phone							
7KC	456	7HAI	157	7HBM	103	7BD	26
7AMC	405	7LT	151	7KV	94	7CV	25
7GG	399	7JU	180	7KLD	58	7FD	24
7NCP	320	7GH	119	7HK	42	7HBF	23
7YP	184	7AL	117	7BJ	35		
7YK	168	7FL	106	7PM	29		

POINTS SUB-TOTAL 3169

HF CW

7UE	112	7YK	93	7RY <td>79</td> <th>7FN</th> <td>30</td>	79	7FN	30
-----	-----	-----	----	--	----	-----	----

POINTS SUB-TOTAL 314

7ZBW	62	7ZJG	39	7CV	15	7KLD	10
7ZJH	47	7PMA	28	7AMC	15		
SONY SUB TOTAL							21

POINTS SUB-TOTAL 216

TOTAL POINTS VK7 DIVISION 3719

VK8 TERRITORY

HF Phone							
8AZ	67	8KP	45	8BD	42	8NW	18
8DI	52						

POINTS SUB-TOTAL 224

HF CW

8HA	38							
-----	----	--	--	--	--	--	--	--

POINTS SUB-TOTAL 39

TOTAL POINTS VK8 263

NEW ZEALAND

Phone	3KR	330						
CW	2ALJ	40	4QY	37				

SWL

Phone	ARDCX	2151	461	60088	112	99
L60036			319	130371		

L4080A	220	M Chance	64
L50087	139		
VHF Phone	804	M Chance	27
YMayer	82		

I now include, just as a matter of interest, some figures which show just how many stations I contacted from each call area outside of VK5 and on what bands. Also shown is a listing of numbers of novice stations contacted, by call areas, on the 80 metre band. To allow some comparison I have provided figures kindly supplied to me by Phil VK1PJ, summarising his 80 metre band operation. Perhaps there is something to be learned from all these figures or perhaps not!

VK5 LOG SUMMARY

VK Call Area	1	2	3	4	5	6	7	8
Novice	1	22	13	18	8	8	1	1
40 metres	86	73	49	42	14	2		
20 metres	41	2	51	66	4	2		
Total	35	27	139	155	190	41	8	8

VK1PJ LOG SUMMARY - 80 metres

VK1PJ LOG SUMMARY— 80 metres				
VK Call Area	Full	Novice	Combined	Area Total
VK2	90	12	10	112
VK3	64	18	8	90
VK4	44	13	4	61
VK5	21	13	4	38
VK6	24	2	2	28
VK7	18	8	1	20
VK8	2	2	0	4

GOLDEN ANNIVERSARY COMMONWEALTH CELEBRATION

Date of Contest From 1200 UTC on Saturday, March 14, to 1200 UTC Sunday, March 15, 1987.

Eligible Entrants All amateur operators licensed to operate within the British Commonwealth or British Mandated Territories. Entries from GB, aeromobile or maritime mobile will not be accepted.

Contacts A1A only in the 3.5, 7, 14, 21, and 28 MHz bands. Contacts may be made with any station using a British Commonwealth call sign except those within the entrant's own call area. An additional call area will be created for this contest only by the operation of a special station using the call sign GBSCC. UK operators may contact this station for the purposes of scoring. All entrants are requested to confine their operation to within the lower 30 kHz of each band except when contacting novice stations that operate above 21 MHz and 28 MHz. Contact exchange consists of RST and serial number commencing at 001. Serial numbers from non-competing stations, when sent, must be recorded.

Scoring Each completed contact will score five points. In addition, a bonus of 20 points may be claimed for the first, second, and third contact with each Commonwealth call area. All British prefixes (G, GB, GD, GI, GJ, GM, GU and GW) count as one call area, with the exception of GBSCC as previously mentioned.

Logs A separate log for each band must be submitted and to include UTC, call sign of station worked, RST/serial number sent, RST/serial number received and points claimed. Band totals must be added together and submitted on a separate cover sheet. Duplicate contacts must be clearly marked without claim for points. Any unmarked duplicate contacts for which points have been claimed will be heavily penalised, and logs containing in excess of five will normally be disqualified.

Entries Entries may be single or multiband. Single band entries may show, on separate sheets, contacts made on other bands for checking purposes only. Each entry should consist of the separate bands logs, together with a cover sheet declaration stating that the rules have been observed.

AMSAT Australia

Colin Hurst VK5HI

8 Arndell Road, Salisbury Park, SA 5109

NATIONAL CO-ORDINATOR

Graham Ratcliff VK5AGR

INFORMATION HITS

AMSAT AUSTRALIA

Control VK5AGR

Amateur Check-in: 0945 UTC Sunday

Primary Frequency: 3.685 MHz

Secondary Frequency: 7064 MHz

AMSAT SW PACIFIC

2200 UTC Saturday

14.285 MHz

Participating stations and listeners are able to obtain basic orbital data, including Keplerian elements from the AMSAT Australia Net. This information is also included in some WIA Divisional Broadcasts.

ACKNOWLEDGMENTS

Contributions this month are from Bob VK3ZBB, Graham VK5AGR, UoSAT Bulletin Board, and AMSAT-Telnet.

AMATEUR RADIO ON NASA SPACE STATION?

Representatives of NASA, AMSAT and ARRL met recently to begin a long-term program which could lead to amateur radio being a permanent passenger on the NASA Space Station. Members of the Shuttle Amateur Radio Experiment (SAREX) group and others met at the ARRL National Convention in California, to discuss initial ideas for the project. It will be one of the longest projects ever undertaken in amateur radio, taking at least nine years from concept to reality; the Space Station is scheduled to fly in 1995.

The group will develop a plan which would lead to a formal proposal to NASA during 1987. AMSAT-NA will lead the working group for the first steps. Then, when tasks are identified in the proposal, ARRL will appoint a task leader and assume the lead role.

One goal of the project is to encourage young people to become involved in engineering, mathematics and science. This has fueled other NASA experiments with amateur radio and amateur satellites, including the previous SAREX projects and the launches of UoSAT-1 and UoSAT-2.

OSCAR-10 RECOVERY EFFORTS

An international group of engineers and command station operators continue attempts to recover AO-10, which has been out-of-control for several months after a memory failure. The failure of the memory crippled the satellite's Integrated House-keeping Unit (IHU), and commands from the IHU are the only means of controlling satellite subsystems. Without the IHU to perform attitude control manoeuvres, AO-10 will soon enter a period of very bad sun-angles. There will not be enough power available from the satellite's solar panels to keep the battery voltage high enough to operate spacecraft electronics. AMSAT teams are searching for a way to load some limited attitude control software into the IHU, and are also examining ways of making the power-down transition easier.

It is thought that a period without power may allow the failed memory chips to anneal, restoring at least some of the failed memory cells. The period without power, however, may have some adverse effects on AO-10: the batteries will be in a deeply discharged state, and the satellite temperature will be quite low. If the spacecraft goes into this eclipse power-down cycle, recharging of the batteries would begin in November, as sun angles improve. Only then will engineers know whether the satellite has survived.

The team working on the problem includes Ron Dubeck W2CZ, Graham Ratcliff VK5AGR, Ian Ashley ZL1AOK, Peter Guelzow DB2OS and Randy Smith VE1SAT.

MEMORY IMPROVEMENTS FOR PHASE-3C

Harris Corporation of Melbourne, Florida, has

agreed to supply AMSAT with special memory modules for its Phase-3C spacecraft. The modules are especially radiation-hardened and qualified for use in space. The new Harris modules, valued at \$80 000 are produced by Harris' Custom Integrated Circuit Division in Melbourne. They will supply the IHU with 32 Kbytes of reliable memory.

Gordon Hardman KE3D, is building a new IHU memory board for Phase-3C. This board must be operationally identical to the one already installed in the satellite, but it must use the new Harris ICs. The new assembly will then be delivered to Germany and integrated with the satellite, which will soon undergo further vibration and thermal testing.

With 32k of IHU memory, the Phase-3C IHU could support features similar to the UoSAT Bulletin and WOD.

Current launch schedule for Phase-3C is August 1987. No firm date has yet been established.

UOSAT-OSCAR-9 IS FIVE-YEARS-OLD

UOSAT-OSCAR-9 was launched successfully by NASA on October 6, 1981 on board a Delta 2310 rocket from the Western Test and Missile Centre, Vandenberg Air Force Base, California, at 1127 UTC. The 554-kg satellite, polar, sun-synchronous Earth orbit. The satellite had taken 30 months to design, build and test, ready for launch. Shortly after separation from the Delta launch vehicle, the spacecraft primary VHF data beacon was switched on and telemetry data received at the control station in Surrey. The satellite's first transmissions were also monitored eagerly by hundreds of radio amateurs around the world. Since then, many thousands of radio amateurs; school, college and university groups and other interested individuals in many countries have participated in the technical challenge of receiving, decoding and analysing the house-keeping and experimental data transmitted by the spacecraft.

UoSAT-1 experienced some difficulties between April and September 1982, when both downlinks were inadvertently activated, blocking the command uplinks. This problem was completely overcome with the assistance of the Stanford Research Institute, USA.

UoSAT-1 now operates a regular series of daily experiments scheduled automatically by the OBC. The OBC schedule is loaded every two weeks by the Surrey Ground Control Station.

It is perhaps, appropriate to summarise the mission objectives established when the project commenced.

1. To investigate the feasibility of, and the problems associated with, the design, construction, test and launch of a relatively small, inexpensive yet sophisticated spacecraft capable of a significant contribution to the engineering, scientific, educational and amateur radio communities.
2. To stimulate and promote a greater awareness of, and interest in, space engineering and science in schools, colleges and universities by direct, active participation in the satellite experiment program. The satellite engineering and experiment data are transmitted in such a manner that they are readily received by, not only professional ground stations, but also simple, low-cost amateur ground terminals.
3. To broaden the scope of the Amateur Satellite Program by catering for the interests of the amateur 'experimenter/scientist' in addition to traditional amateur radio communications.
4. To evaluate the use and performance of novel technologies, spacecraft systems architectures and cost-effective spacecraft engineering techniques to provide a lower cost entry level into space activities.

The UO-9 mission has proved a remarkable success and the spacecraft continues to perform extremely well with no significant degradation

thus far detected. The mission has experienced its 'ups and downs,' but each difficulty has been overcome by perseverance resulting in 'better' spacecraft operations and facilities. Indeed, sustained effort on spacecraft on-board computer software and ground control station facilities have resulted in enhanced performance from the spacecraft over the last year.

The UoSAT Team at UoS wish to thank the thousands of experimenters world-wide who have sent in reports, experiment results, suggestions and general support for the mission — not forgetting those who helped us through difficult times!

At five years, UoSAT-1 is the longest living operational satellite in the Amateur Radio Satellite Service.

OSCAR-10 HISTORICAL REPORT

Three Years of Operation with AMSAT OSCAR-10

A Detailed report
by Karl Meinzer DJ4CZ

AMSAT/DJ Journal, September/October 1986
(translated by Don Moe DJ0HC/K6BMM)

1 Introduction

AMSAT OSCAR-10 was launched on June 23, 1983 and is the first "Phase-3" satellite in space; its predecessor, P3-A, was lost in 1980 due to a launch failure. Compared to all previous AMSAT satellites, a completely new satellite architecture is employed in the P3 satellites, which represents a significant advance in cleverness and technology. As a matter of course, several risks were also intrinsic to this technological advance; we had therefore estimated the lifetime of the first P3 satellites at three years. In these three years, OSCAR-10 has significantly enriched amateur radio satellite mania. Several articles have reinforced our opinion that this is the correct path to follow. Unfortunately, several problems in OSCAR-10 are now occurring that give cause to believe that its days are numbered. This report will describe in detail what we have learned to date from the P3 project.

2 Failures in the satellite

In a report of this nature, it is appropriate to initially describe the failures that have occurred in the satellite. More important however, is the analysis which would prevent recurrence of these problems. In the following enumeration, the presumed causes (P) and the necessary consequences (N) for subsequent satellites will be discussed.

a) Failure of the temperature sensor in the U-transponder's transmitter. The sensor, as are all temperature sensors in AO-10, is a YSI-44203-NTC combination, which consists of two NTC resistors integrated in a package which must be supplemented with a resistor in our circuit.

The temperature range is practically linear between -30 and +50 degrees Celsius, and an individual alignment of the channels is not necessary. After 2.5 years of operation, the sensor in channel 06 suddenly indicated significantly too low temperatures, although changes could still be

P A comparison of the indicated temperature values with the probable temperatures from previous operation has led to the conclusion that the defect was caused by section T2 of the sensor becoming electrically non-conductive.

N The failure appears to be caused by a chance material breakdown. Since our experiences with the sensors are otherwise quite good, there are no consequences.

b) Antenna relay for the 24 cm antennas. During initial operation of the L-transponder, the relay in the arm of the 24 cm directional antenna had over 10 dB attenuation. After the relay was actuated approximately 10 times, a faultless contact was achieved.

P Since practically no current flows through the relay contacts in the case of the receive antennas, the danger of a high contact resistance always exists. The relays have gold-plated contacts and therefore should not have this problem. If, however, impurities are present in the relay, especially at the relatively low temperatures in our satellite, problems can occur.

N In principle, a small DC current could be routed through the contacts. Because we were able to solve the problem by repeater switching, we have decided not to make any changes. Since the relays are practically handmade for the space industry, the danger always exists that a lot of money is paid for a component which does not have the manufacturing maturity of a mass-produced item. Unfortunately, we do not have any alternative.

d) Final amplifier of the LTransponder. Upon initial operation of the LTransponder, the amplification was too little, the output power too low, and the typical distortion of Class-C amplifiers was apparent.

P Analysis of the telemetry data, especially of the currents, has indicated that quite likely the voltage converter for the final amplifier bias has failed. The converter uses two JAN-TX 2N2807A transistors, which come from a space project of NASA. Presumably, one of these transistors has developed an open junction.

N For the same reason, the command detector in P3-A had failed in Kourou. We have subsequently rejected all of these transistors for future projects. The possibility exists that the transistors are "tested to death" in inane acceptance tests. This case has again led to considerable discussion whether it is really wise to use special militarily qualified components or whether good quality mass-produced items would not be better. It is indeed indicative that in all of our failures the "milit" components are involved, even though we have employed very few of them in our satellites. By the way, the new LTransponder has an entirely different final stage design without a bias voltage converter.

d) Helium bottle seal. Immediately following initial operation of the 400 N motor in OSCAR-10, the helium pressure fell so much that a second ignition of the motor was no longer possible.

P According to telemetry data for the helium high and low pressures, a leak occurred on the high pressure side, causing the gas loss. Probably the screw seal of the helium bottle became loosened so much through the temperature cycles, as a result of the collision following the launch, that the gas could escape.

N For the helium bottle of P3-C, a further sealer was employed in addition to the tin gasket. Tests have indicated that the resistance to temperature cycles is thereby improved. The original seal of the bottle was only designed for 200 bar; at the 400 bar used, another design would be better. Unfortunately, only bottles of the type we use are available.

d) Antennas. Several antennas rods were presumably bent as a result of the collision after launch. The ESA has undertaken all necessary steps to prevent collisions in the future. P3-C additionally has flexible two metre antennas which are not as easily bent. However, damage during a collision is nearly unavoidable; the energy absorbed by the antennas probably prevented damage to the solar cells.

f) LIU. The module for operating the propulsion system (LIU) has a design error such that the ignition time values were incorrectly interpreted by the computer. Thus OSCAR-10 reached the high perigee of 4000 km. This problem could have been solved in software, however, due to space limitations, the LIU has been redesigned, and the crossed lines also corrected at this time.

g) Sun sensor. Operation has indicated that the sun sensor sensitivity must be set very exactly; slight variations cause either a mis-triggering or double triggering.

P The problem is not correctly understood at this time, from the statically recorded graphs, the phenomenon cannot be understood.

N We are presently still building a sun sensor for further tests. These should then indicate which measures should be taken in P3-C.

h) Thermal design. The thermal design of AO-10 was conducted in the USA on a large computer. Just prior to launch, a rough manual calculation indicated that the design would have led to a much too cold satellite. Measures were taken prior to launch to bring the temperature as far as possible up to the desired temperature of 10 degrees Celsius. In fact,

the possible measures were only sufficient enough to raise the temperature to five degrees Celsius. Experience has shown however, that we can live with this value and changes are not planned. Merely the fuel lines to the motor and the battery design have been reworked, in the first case to prevent freezing of the fuel and in the second, to reduce the gradient.

In addition to the above problems, further difficulties have arisen after a long period of operation, indicating a kind of wear due to the high radiation exposure in our orbit, though in principle, they were to be expected.

a) Solar generator. Since the solar cells are mounted on the external skin of the satellite, a larger power decline is unavoidable. The solar cells are covered with a thin thick glass cover for shielding. Calculations predicted a 40 percent decline in power in three years. In fact, the power declined 12 percent in six months and around 24 percent in three years. After six months, we reduced the input voltage of the generator two volts compared to the optimal values prior to the launch (29 mV per cell) and have operated with this setting unchanged to this day. The power decline data are referenced to this setting. The solar generator from AEG-Telufunken has exceeded our expectations and can be employed without changes even for missions of significantly longer duration in an elliptical orbit. It may be that an adjustment of the operational voltage after approximately three years would even lead to a small increase in power.

b) BCR. The battery charge regulator receives its voltage settings for the solar generator and battery voltage from the board computer, which sets them depending on temperature. The BCR contains DIA converters whose outputs are routed into the control loops for the voltages. There are two redundant regulators present, although the DIA converters are single. The DIA converters are connected to the regulators through 270K ohm decoupling resistors to eliminate mutual interaction. The input current of the operational amplifier in the regulators has increased in the three years to approximately 1 uA, thereby causing drift. In P3-C, the decoupling resistors must be reduced in value to avoid this drift. In AO-10 the drift is compensated for through corresponding software parameters.

c) The memory of the board computer. There are 12 dynamic 4118 memories flying in

OSCAR-10 APOGEES — DECEMBER 1986

APOGEE CO-ORDINATES SYDNEY ADELAIDE PERTH									
DATE	DAY	NO	ORBIT	UTC	LAT	DEG	AZ	DEG	EL
NO	NO	NO	NO	HHMM:SS	DEG	DEG	DEG	DEG	DEG
1	336	2908	1821:28	-7	282	274	10	292	20
2	336	2910	1840:28	-7	272	279	10	288	29
3	337	2912	1456:31	-7	263	286	26	296	36
4	337	2914	1456:31	-7	263	286	26	296	36
5	339	2918	1357:35	-7	244	302	41	318	48
6	340	2918	1258:39	-7	225	313	49	333	54
7	341	2920	1215:41	-7	225	327	53	362	57
8	342	2922	1134:44	-7	218	345	57	392	57
9	343	2924	1053:44	-6	207	4	58	29	63
10	344	2926	1012:46	-6	197	24	55	43	68
11	345	2928	0946:48	-6	188	39	51	55	41
12	346	2930	0950:52	-6	179	52	44	64	34
13	347	2932	0909:54	-6	169	62	37	71	26
14	348	2934	0728:57	-6	160	29	29	79	16
15	349	2936	0647:59	-6	151	76	21	84	10
16	350	2938	0607:02	-6	141	82	13	89	2
17	351	2940	0446:07	-6	122	92	3	268	2
18	352	2943	1824:35	-6	297				
19	353	2945	1543:41	-6	288	271	13	279	13
20	354	2947	1502:43	-6	279	277	11	295	21
21	355	2949	1451:46	-6	270	283	19	292	29
22	356	2951	1340:49	-6	260	289	26	301	36
23	357	2953	1250:51	-6	251	297	34	311	43
24	358	2955	1210:54	-6	242	307	42	324	49
25	359	2957	1137:56	-6	232	318	47	339	53
26	360	2959	1056:59	-6	223	333	52	367	55
27	361	2961	1016:02	-6	215	351	21	392	52
28	362	2963	0925:04	-6	204	9	65	31	50
29	363	2965	0854:07	-6	188	27	62	45	44
30	364	2967	0813:09	-6	175	41	47	55	39
31	365	2969	0732:12	-6	163	43	41	64	33

SATELLITE ACTIVITY FOR THE MONTH OF AUGUST 1986

1. LAUNCHES

The following launching announcements have been received

INTL	SATELLITE	DATE	NATION	PERIOD	min	APG	km	PRG	km	DECL
NUM-										deg
BER										
1886										
058A	Cosmos 1756	Aug 02	USSR		89.2	303	198	82.8		
059A	Cosmos 1779	Aug 04	USSR		83.3	456	438	86.0		
059B	Cosmos 1780	Aug 06	USSR		83.3	456	438	86.0		
061A	EGP	Aug 13	Japan		118.7	1590	1489	50.0		
061B	JAS-1	Aug 13	Japan		118.7	1590	1489	50.0		
061C	MABES	Aug 13	Japan		118.0	1590	1500	50.0		
062A	Cosmos 1771	Aug 30	USSR		90.0	370	210	80.0		
063A	Cosmos 1772	Aug 31	USSR		86.7	370	210	80.0		
064A	Cosmos 1773	Aug 27	USSR		86.7	370	210	80.0		
065A	Cosmos 1774	Aug 28	USSR		118.6	3924	214	82.8		
Cosmos 1771 (like Cosmos 1736) is a nuclear reactor powered reconnaissance spacecraft. It carries large radar antennas to monitor movements of sea-going vessels. On completion of its mission, the nuclear reactor section is boosted to a higher orbit of about 105 minutes period.										

2. RETURNS

During the month 40 objects decayed including the following satellites:

1986-063A	Cosmos 1756	Aug 04
1986-055A	Cosmos 1765	Aug 07
1986-055A	Cosmos 1767	Aug 18
1986-055A	Cosmos 1768	Aug 18



AO-10, which at the time of development of P3-B were the best available memories. Since temporary errors can occur in dynamic memories due to particle radiation, the 12 bits are so employed that in each eight bit word of the computer single errors can be corrected. The software reads and writes the memory every five minutes, thus preventing an accumulation of errors. Even at the time of development, it was clear that this memory in AO-10 would only survive the radiation for approximately three years, unfortunately nothing better was available.

The memory functioned as planned until November 1965 (two and a half years) and corrected about three errors daily. This was no problem and corresponded to our expectations. In November, the counter, which tallies the corrections, began to run very fast. In May 1966, the first "crash" of the computer came to pass.

At that time, a memory test indicated that a column decoder (XX01 and XX81) was defective and that throughout the entire memory errors are distributed with accumulations "high" and "low." Subsequently, the software was reworked such that positions 01 and 81 are excluded and that the entire memory is read and rewritten in 20 second intervals. This measure has, to date, (August 10, 1966), restored nearly normal operation. However, even more errors are meanwhile occurring in the K, L, M and N blocks, the memory is becoming increasingly worse such that the service life of AO-10 cannot be expected to last much longer. A "harder" memory should definitely be used in

P3-C; all other systems in AO-10 would most certainly achieve a service life of six to 10 years. 3 Ground systems and software

In contrast to all previous satellites of AMSAT, the P3 satellites have a board computer which is responsible for control. As a consequence, command systems of the old type no longer exist and a dialogue with the board computer has taken their place. After three years operation with this system, there no longer exists the slightest doubt that this is our path into the future. The conversion has not happened quite as painlessly, however, as we had hoped. The command operation of the old type could be distributed "to the folks" by shipping a bale of paper. Initially we also attempted to distribute the P3 technology in this manner and leave the details of their installations to the command stations.

Unfortunately, this concept was a failure, the majority of the stations were not really operational at the time of the launch. One of the biggest problems turned out to be that the S-100 computers, in primary use by Americans, created such a strong interference level on two metres that error-free telemetry reception was not possible. It also became apparent that the training of the people was inadequate. A command training seminar was therefore held in Marburg approximately one year after the launch of AO-10. At the same time as this meeting, the price of the Atari 800XL computer fell so far that all command stations acquired the same equipment as used in

Marburg. Meanwhile, the ground software had become so powerful that one of these computers was adequate for a normal command station. Originally three computers were necessary. Now that we train the amateurs who will be operating command stations every one to two years, the P3 technology has become quite manageable.

4 Outlook

Due to the enumeration of the many problems, the impression could be imparted that we do not yet quite have a thorough grasp of the P3 technology. In fact though, AO-10 is the AMSAT satellite that has functioned with the fewest problems to date, despite all the adversities. Especially the technology of the board computer and the 400 Bit/s synchronous data transmission have played a significant part in immediately allowing us to control this complex satellite with its active attitude regulation, its dual fuel rocket motor, and a plethora of technological innovations. There can be no doubt that here we have selected a path indicative of the future, even the operators of commercial satellites envy us.

SEASONS GREETINGS

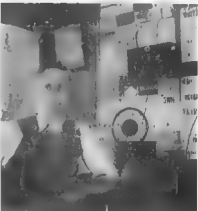
To the readers of this column I extend to you all Seasons Greetings and a Prosperous New Year, and I look forward to your continued support in 1967.

—de Colin VK5HI

Alan Shawsmith VK4SS

35 Whyndol Street, West End, Qld. 4101

In the photograph, alongside Harry VK4HA, is Al VK4SS. Both obtained their AOCs together in August 1935. After a total of 102 years of radio there were endless stories to swap, with much nostalgia. (The meeting was arranged by courtesy of Roy VK4BAY.)



ROY KERR VK4DK

Roy obtained his AOC at Winton, in 1935. He was very active pre-WWII from this Central Queensland town. Post-war, Roy moved to Tingalpa, Brisbane and continued in amateur radio using war disposals gear.

A PMG telegraphist by vocation, VK4DK was a "gun" brass pounder, his code being used on QTC radio links. He retired in 1967.

Roy lists his other hobbies as growing champion gerberas for show, likes shooting and fishing — with silver coins (his own cryptic description). Does he mean he likes playing the "one arm bandits"?

Pre-WWII, Roy's brother Vern VK4LK, operated the Flying Doctor Base Station, VJL, at Glenbury. Roy used to QSY his rig to the frequency of VJL and hold regular scheds and rag chews with brother Vern. Eventually, the Radio Inspector became aware of this — he was not amused!



Thumbnail Sketches

HARRY B ANGEL VK4HA

— The oldest Active Amateur

In the accompanying photograph, holding a vintage microphone (1935) is Harry VK4HA, who looks and sounds much younger than his 95 years.

Born in England, he sailed around the Horn while still in his teens as an AB (Able Seaman) in a whaler. Being young and active, his job was to furl the top sails. Eventually, after a look at the USA, he reached VK and put down his roots. It was from Down Under that he enlisted and served

in two world wars.

A feature of Harry's first years in amateur radio was his well-organized Sunday morning DJ Broadcast on 80 and 40 metres. He established a large listening audience and received many excellent SWL reports for his work.

Like so many other amateurs he successfully conducted his own radio service business for many years at Toowoong, Brisbane. Harry has now retired to Lota, a seaside suburb of Brisbane. He can be found almost daily on the bands working DX in open competition.





Listening Around

Joe Baker VK2BJX
Box 2121, Mildura, Vic. 3500

Forty years have passed since many of the events on Morotai Island in wartime took place, and although I am now a service pensioner aged 69, I still have a pretty good recall of what happened there when I was a member of the Australian Press Unit, which printed the Army Island Newspaper Table Tops, and later, the Broadcasting Station 9AD

WHAT ARE THE MOST OUTSTANDING MEMORIES OF THOSE DAYS?

I remember that President Roosevelt died the same day we arrived at Morotai on the American ship, the *Frederick C. Ainsworth*, which had collected us at Brisbane after being kitted-out and vaccinated at Logan Village and Strathpine. We received the news soon after 6 am whilst we were below decks awaiting a disembarkation order. This is how I know the exact day we arrived.

I remember being present at one of the war trials that were held on Morotai soon after the Pacific war ended. It was not a pleasant experience.

I also recall listening by radio to General MacArthur, on board the *Missouri* in Tokyo Bay, when he accepted the formal surrender. I was also present at the surrender on Morotai itself, accepted by General Blamey.

MONKEYING AROUND

Other memories come flooding to me also. Like the day a Borneo monkey, which was one of my mates' pets, discovered an 807 valve that I had acquired and took it to the top of a tree near my tent. There he was, perched on a limb with 807 in his hand, grinning like the monkey that he was, and acting as if to drop it while I stood shaking my fist far below. Eventually he did drop it but it fell on soft ground and fortunately did not smash!

The same monkey also had a great liking for anything shiny, such as mirrors, and he would purloin these given the opportunity if the boys left them lying around. One day we returned to our tent to find the monkey looking rather "green around the gills" or whatever monkeys look like

when they are not too well! It appeared that he had taken a shine to someone's Aladdin tablets and he looked so sick we thought he would die. But Borneo monkeys are tough little animals and he survived.

I was on Morotai for about nine months, but I packed more into that nine months than I have done since in a lifetime!

When 1946 arrived we were still on Morotai. We were advised that there were no ships available to bring us home, so the troops amused themselves with varying pastimes. Some raided a nearby aircraft dump to get plastic to make souvenirs to sell to the Americans or to send home. Another chap and I used to frequent this dump to locate wire and other bits and pieces so we could repair radios for the SCOF troops, who were passing through on their way to Japan. We were paid in Dutch Dollars.

Eventually, the time arrived for us to leave. The broadcasting station and newspaper had closed down for the last time, many units had already departed, and Morotai was beginning to look somewhat forlorn.



THE FIRST SHIP TO BRING US HOME

CALL SIGN: 1770 KC (25.619 METRES)
FREQ: 490 K (49.917)
POWER: 50 WATTS AERIAL RATING
TRANSMITTER: AWA HIGH FIDELITY
RECEIVER: VERNON



QSL card received by VK30Z, in 1937. Written on the back of the card: Thanking you for your letter and report on Marine Station 9AD. Yours faithfully, Eileen Foley, Announcer-in-Charge.

HOMEWARD BOUND AT LAST

At last the ship arrived to bring us home. It was the major vessel, *Kanimbala* of the Moolwah McEneaney line, formerly a passenger ship on the Australian coastal run, but now a troopship. The *Kanimbala* had a special significance for me as a pre-war shortwave listener, because it had a broadcasting station on board, and I used to listen to concert broadcasts from the ship as she traversed the coast.

Bert Shire VK30Z, 81 years old and now of Mildura, was also a shortwave listener at that time, and sent the ship's radio operator a signal report in 1937. In due course he received a QSL card from the Announcer-in-Charge, Eileen Foley. Eileen's card thanked Bert for his report and gave some details of the frequencies and power used by this marine station.

Call Sign — VK9MI
Frequency — 11770 kc (25.619 metres) and 8010 kc (49.917 metres)
Power — 50 watts aerial rating
Transmitter — AWA High Fidelity

Bert was kind enough to supply me with a photocopy of the card. It is also interesting to note that BML claimed to be the first ship's broadcasting station. Isn't it a pity there are not some of them still around today. It would surely add to the joys of shortwave listening.

I am sorry I have missed so many deadlines but this time I am just in time to wish all Season's Greetings and say thank you for the many kind words that you have made to me personally on air. My story is only one of many that could be told if only others would put pen to paper and so related their experiences during WWII.

There is much more to come about my experiences in the immediate postwar years when, like so many ex-servicemen, I found it difficult to settle back into civilian life and I had to fight this little card of war in which I found myself involved.

A very Happy Christmas and 73 to all readers — Joe VK2BJX.

ELECTRICITY

Today's scientific question is: What in the world is electricity? And where does it go after it leaves the toaster?

Here is a simple experiment that will teach you an Important electrical lesson: on a cool, dry day, scuff your feet along a carpet, then reach your hand into a friend's mouth and touch one of his dental fillings. Did you notice how your friend twitched violently and cried out in pain? This teaches us that electricity can be a very powerful force, but we must never use it to hurt others unless we need to learn an important electrical lesson.

It also teaches us how an electrical circuit works. When you scuffed your feet, you picked up batches of "electrons," which are very small objects that carpet manufacturers weave into carpet so that they will attract dirt. The electrons travel through your bloodstream and collect in your finger, where they form a spark that leaps to your friend's filling, then travel down to his feet and back into the carpet, thus completing the circuit.

Amazing electronic fact: if you scuffed your feet long enough without touching anything, you would build up so many electrons that your finger would explode! But this is nothing to worry about unless you have carpeting.

Although we modern persons tend to take our electric lights, radios, mixers, etc. for granted,

hundreds of years ago people did not have any of these things, which is just as well because there was no place to plug them in. Then along came the first electrical pioneer, Benjamin Franklin, who flew a kite in an electrical storm and received a serious electrical shock. This proved that lightning was powered by the same force as carpets, but it also damaged Franklin's brain so severely that he started speaking only in incomprehensible maxims, such as, a penny saved is a penny earned. Eventually he had to be given a job running the post office.

After Franklin came a herd of electrical pioneers whose names have become part of our electrical technology: Myron Volt, Mary Louise Amp, James Watt, Bob Transformer, etc. These pioneers conducted many important electrical experiments — among them, Galvani discovered (this is the truth) that when he attached two different kinds of metal to the leg of a frog, an electrical current developed and the frog's leg kicked.

The greatest electrical pioneer of them all was Thomas Edison, who was a brilliant inventor despite the fact he had little formal education. Edison's first major invention in 1877, was the phonograph, which could soon be found in thousands of American homes, where it basically sat until 1923 when the record was invented. But Edison's greatest achievement came in 1879, when he invented the electric company. Edison's

design was a brilliant adaption of the simple electrical circuit: the electric company sends electricity through a wire to a customer, then immediately gets the electricity back through another wire, then, (this is the brilliant part) sends it right back to the customer again.

This means that an electric company can sell a customer the same batch of electricity thousands of times a day and never get caught, since very few customers take the time to examine their electricity closely. In fact, the last year any new electricity was generated was 1937; the electric companies have been merely reselling it ever since, which is why they have so much time to apply for rate increases.

Today, thanks to men like Edison and Franklin, we receive almost unlimited benefits from electricity. For example, in the past decade scientists have developed the laser, an electronic appliance so powerful that it can vaporize a bulldozer 2000 metres away, yet so precise that doctors can use it to perform delicate operations to the human eyeball, provided they remember to change the power setting from "Vaporize Bulldozer" to "Delicate."

So anyway, next time you get a bill from the electric company, just send it right back, with an attached note explaining, "Haven't seen it all month!"

—Contributed by Len Pearson VK5LP



Australian Ladies Amateur Radio Association

Joy Collis VK2EBX
PUBLICITY OFFICER, ALARA
Box 22, Yeoval, NSW 2868

WHY XYL?

I have received an interesting letter from Lloyd VK2VBZ, regarding the use of XYL for wife. Lloyd says that many amateurs consider XYL inappropriate terminology because, to quote from his letter, "They are still young to us."

He further states that these "oldies" who dislike the term XYL use GL (Good Lady) instead.

Well Lloyd, on the other side of the coin, we use the expression OM even if the gentleman we are referring to is in his early 20s, but there is a lot to be said for your idea, and "good lady" certainly has a pleasant, old-worldish ring to it, there is food for thought there!

Lloyd grew up with Morse, and knew Mrs Florence McKenzie many years ago. He says:

"Why not promote GL to the fraternity and give wives of amateurs a status? I am sure Mrs Mac would agree — I had the privilege of being associated with that VGL in 1939/40. Having been an ex-Army Cadet Signals we had a little in common. AWA York Street conducted the first RAAP radio op training school and our lunch was supplied by Mrs Mac at her Sussex/Kent Street rooms. We used to march from York Street to those rooms, which were set up with benches with Morse training facilities."

Thank you for your comments and reminiscences, Lloyd

Maybe XYL does conjure up visions of the little woman clad in dowdy clothes and voluminous apron, surrounded by waiting children, piles of washing and dirty dishes in the sink while the OM sits serenely in his shack and works the world, (or the OM down the road).

Surely this scenario is somewhat inapt for this day and age when more and more women are becoming actively involved in the world of amateur radio.

Fortunately for us, the general term for a female amateur radio operator is YL, whether she be nine or 90. YL appears on the ALARA logo, badge, stickers, etc, and is in fairly general usage throughout the world.

XYL or GL for wife? Can tradition be changed anyway? Comments welcome!

YL CONTESTS

YL-OM MIDWINTER CONTEST

The English YL club, BYLARA, the Belgium club, BYLC, the Dutch club, DYLC, and the Italian YL club, YLRC, organise this contest

DATE — the weekend January 10 and 11, 1987.

CW Saturday, January 10, from 0700 UTC to 1900 UTC

Phone Sunday, January 11, from 0700 UTC to 1900 UTC.

BANDS — all bands. Please use band-sections according to IARU recommendations for Region 1. CW and SSB (no cross-mode).

EXCHANGE — station worked RST and QSO-serial number. OM's start at 001, YLs start at 2001. Country. Entry in log must also show time, band, date, YL or OM, number of multiplier.

POINTS — each QSO with a YL, confirmed, counts as five points. Each QSO with an OM counts as three points.

SWLs — each different heard YL station counts as five points, multiplier as below. Logs must also show the foreign station worked with.

MULTIPLIERS — one point for every worked DXCC country. Multipliers are counted only once in the contest, it is not counted on each band.

AWARDS — a certificate will be awarded to the YL and OM winner in each category and also to second and third classified stations. Certificates will also be awarded to each country winner in each category.

LOGS — to be sent no later than February 20, to Drauw Wildbeor PA3CEB, Kettingweg 3, 6281 PN Genemuiden, The Netherlands.

YL-OM CONTEST

Sponsored by YLRL

Phone starts Saturday, February 14, 1987 at 1400 UTC and ends on Monday, February 16, 1987 at 0200 UTC.

CW starts Saturday, February 28, 1987 at 1400 UTC and ends on Monday, March 2, 1987 at 0200 UTC.

OPERATION — all bands may be used. No cross-band operation. Hot contacts and repeater contacts do not count. A station may be counted only once in each contest for credit. Participants may work only 24 hours of the time.

EXCHANGE — station worked, QSO number, RST, T, state/province/country. Entries in log must also show time, band, date and transmitter power.

SCORING —

a. Phone and CW will be scored as separate contests. Submit separate logs for each contest.

b. One point is earned for each different station worked: YLs count only OM's and OM's count only YLs.

c. Multiply the number of QSOs by the total number of different states/provinces/countries worked.

d. Contestants running 150 watts or less on CW and 300 watts PEP or less on SSB may multiply the results of c by 1.25.

LOGS — must be signed by the operator and no logs will be returned. Remember to file separate logs for each contest. Logs must show claimed score and be postmarked by March 16, 1987, and received no later than March 31, 1987. Please send logs to: YLRL Vice-President, Mary Lou Brown NMTN, 56 Channel View Drive, Ansonville, WA 98221, USA.

ALARA AWARDS

Award No 120, July 31, 1986 to T K Morrison VK3DNZ.

Our Award Custodian has been receiving award applications which do not comply with the rules: eg \$2 enclosed instead of \$3, unsigned, not certified by two other amateurs, etc.

It seems unfortunate that awards have to be refused on these grounds, particularly in these days of rising postal charges. Please check the rules carefully before forwarding an award application to avoid disappointment. Rules have been well publicised.

SUBSCRIPTIONS

It is that time of the year again, and subscriptions are due once more. Please do not forget sponsored members.

\$5 Australian member (full or associate) and \$10 further.

\$6 Air mail overseas member or sponsored.

\$4 Surface mail overseas member or sponsored.

Please send subscriptions to our new Treasurer, Val Rickaby VK4VR, 3 Dulcie Street, Salisbury, Qld 4107.

It was very enjoyable on a recent trip to Victoria to meet Daphne VK2KDX. We have got to know each other via amateur radio over several years, but this is the first time we had actually met. Naturally, there was much talk and plenty of cups of beer the OM finally managed to drag me away to continue our journey. It is good to meet an "old" friend for the first time, isn't it!

I would like to wish everyone a very Happy Christmas, and all the blessings of the Festive Season.

See you in 1987!
7/3/87, Joy VK2EBX.

IAN J THISCOTT

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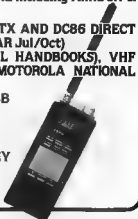
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EXTENSIVE RANGE OF ELECTRONIC COMPONENTS FOR THE RADIO AMATEUR, HOBBYIST & PROFESSIONAL including AMIDON & NEOSID FERRITE PRODUCTS.

- STOCK DREW DIAMOND'S 4 WATT CW TX AND DC86 DIRECT CONVERSION RECEIVER FOR 80m (see Ar Jul/Oct)
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- UNIDEN SCANNING RECEIVERS
- COMPUTERS
- WELZ TP-25A 50-500 MHZ DUMMY LOAD — POWER METER





Education Notes

AUSTRALIA'S YOUTH — AND THE AMATEUR SERVICE — 1986 — AND THE NEXT 10 YEARS

Brenda Edmonds VK3KT
FEDERAL EDUCATION OFFICER
56 Baden Powell Drive, Frankston, Vic. 3199

Guest Written: Danny McManus VK3NG

While recently addressing a radio club in VK3 on what was a "potpourri" of amateur radio, several lines of thought led to light that provide a basis for this article.

amateur radio?). Table 1 shows current prices for a small range of popular radio gear and the question posed is how many 16 year olds can afford that lot?

Table 1 — What 16 year old can afford this:
IC-731 RRP \$1554
FT-757 RRP \$1295
FT-209RH RRP \$460

"Down Market" perhaps:
80 metre transceiver \$350
or Rotators from \$280 to \$500
or Triband Beams just \$425
even Cheap Verticals
at \$150

and Coaxial Cable a mere \$180 per roll

Secondhand?
IC701 \$700
FT75 \$400
FT101 \$480
T8520 \$450

TOTAL? \$2000 plus perhaps?

The response often forwarded is get them started with simple CW gear on 80, or they can afford computers so they can afford radio gear. Both responses show conservative and backward thinking. How many people reading this article are 80 metre CW operators only, or would be happy to be? And, how many of you are 16 years old? A 16 year old would see this as a move back to the arctic. Because it was good enough for you 30 years ago does not mean the logic still holds. The second point may be valid, but as VK2ZTB and VK3PC point out in their AR article, if Personal Computers are where the interest of today's youth lies then we must move to accommodate this interest — not stand off and adopt the attitude that we will accommodate them when they come to us on our terms. And, of course, many of today's youth cannot afford Personal Computers either. In the school where I teach, the student population of 650 probably boasts fewer than 15 to 20 Personal Computers. If we are genuine in our belief that amateur radio is a pursuit that has a lot to offer today's younger generation then we need to consciously strive to ensure not only does the hobby ignore political barriers, but it is not restricted by socioeconomic barriers either.

The second interesting point to emerge was the radio club's belief that there was already enough avenues into amateur radio without adapting any changes to our current licensing system. I am not sure of their logic because the evening was not dedicated to this single issue, but the issue is surely as simple as setting up the maximum number of entry points into our hobby, whilst ensuring maintenance of standards and protocols that the majority of amateurs see as important. The broader the access to our hobby becomes, the more likely we are to attract outsiders into our ranks — both young and old.

The third issue addressed was how do we sell ourselves to the public, but youth in particular. If indeed today's youth are heavily into Personal Computers, then the first step should be a self-sell via computer bulletin boards, something the WIA could well address, as well as club members with access to bulletin boards. Schools are another starting point — perhaps not only in the traditional, amateur addresses students, routine but by using courses such as VK3A STC, a Year 12

student negotiated curriculum course or as an integral part of Year 10/11/12 electrical or electronic practices course. Once again, a little investigation from each Division in association with their State's education authorities should reveal new avenues into schools.

Public education should form an important part of our overall approach to expansion. Check your Division's annual expenditure on Public Relations exercises/materials and then talk to a Divisional councillor. Clubs are often reluctant to organise displays in shopping centres or similar venues because "last time the public did not come near us." Of course they didn't — you must go to the public. You are selling the product, and so the initiative lies with you! It is very difficult to approach the kid with the punk hairdo, but he is probably as nervous of you as you are of him/her.

There are several more subtle ways to educate the public young or old. Doctors and dentists surgeries hold a captive audience, as do hospitals and the like — so make sure your old Amateur Radios end up in these places rather than at the local tip or incinerator — anything beats a two year old copy of *Women's Weekly*.

And the kid who puts petrol into your car and comments on the big CB set! The WIA have a pamphlet explaining amateur radio and how to get involved — obtain 20 from your Division and leave them in your car to answer the "ignorant public's" questions.

Amateur radio books in your library? Why not? They should be there! If they are not, ask for them to be put in your library or check out with the WIA Federal Office for what is available and donate it to your library, making sure the odd pamphlet or two is placed on the information boards.

Perhaps why we have failed to attract young people into our hobby is academic but how we can attract young people is very important. Young people will give a hobby a much needed new lease of life and give a new perspective to where we are headed — imagine 40 metres with a thousand new stations causing the intruders interference!

Our hobby by its very nature has much to offer young people, but it is up to us to ensure that we let them know about it and give them every opportunity and encouragement to become part of it. The thoughts of one famous American went along the lines — it's not what my hobby can give me, but what can I give my hobby. What have you given your hobby of late?



QSP

LIMITED CW

The use of CW is permitted on the VHF and UHF bands by holders of the AOCIP. This is not news — and has been previously published in AR magazine and included on WIA broadcasts.

However, comments at recent club meetings and on air show that some AOCIP operators are still unaware of the change which gives them the right to use CW.

Many have been heard operating with CW either to get their speed up for the DOC examinations or as an added mode for working DX.

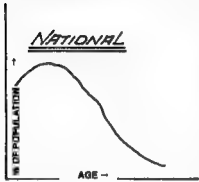


Figure 1 (a).

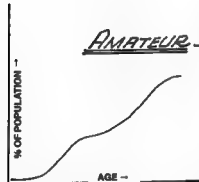


Figure 1 (b).

Figures 1 — Show (a) Age as a percentage of total national population versus (b) Age as a percentage of amateur population in Australia.

The subject was raised by comparing two graphs (Figures 1a and 1b), the amateur population — age versus percentage — to the national average. One glaring conclusion is that the amateur service attracts or consists of middle-aged or older citizens and that, for some reason, we are failing to attract this country's greatest resource — its youth — (let me say at this point that there is nothing wrong with attracting an older percentage of the population, but to me there is something wrong with our failure to attract youth into our hobby). So, why have we apparently failed? Perhaps the advent of cheque book amateur radio could be addressed for it is credit card



Spotlight on SWLing

Robin Harwood VK7RH
52 Connaught Crescent, West Launceston, Tas 7250

Well, another year has come to an end! There have been few surprises and a number of disappointments, mostly related to poor propagation. There have been a few new stations on the air, while some services are being curtailed. Fortunately, I believe that conditions are slowly improving and these summer months should see the higher frequencies more active, especially during the late evening hours. This will make up for the atrocious QRN on the lower frequencies from all the electrical storms, which will render these bands virtually unusable.

RE-BROADCASTING

At the beginning of October, we saw the commencement of re-broadcasts of Radio Japan (NHK), in Tokyo, from the Sackville site of Radio Canada International. This is as a result of a co-operative agreement signed by the representative governments. RCI has been engaged in re-broadcasting both the BBC and Deutsche Welle, to North America, for many years. So it is not new to Japanese and 30 in English. Incidentally, the same program is going out on 7.140 and 11.815 MHz simultaneously from the Yamato site, beamed to south-east Asia. When North America went off daylight saving on October 26, the broadcasts were aired one hour later. Radio Japan consistently comes in strongly, broadcasting to Australia on 16.235 MHz from 0500 UTC in Japanese and English.

On October 1, the first transmission went out on 6.120 MHz, at 1030 UTC, directed to the east coast of North America and surprisingly, was well heard here in Tasmania, which is well out of its target area. The program was 30 minutes in Japanese and 30 in English. Incidentally, the same program is going out on 7.140 and 11.815 MHz simultaneously from the Yamato site, beamed to south-east Asia. When North America went off daylight saving on October 26, the broadcasts were aired one hour later. Radio Japan consistently comes in strongly, broadcasting to Australia on 16.235 MHz from 0500 UTC in Japanese and English.

GETTING THE SIGNAL THROUGH

The BBC, earlier this year, commenced utilising the Far Eastern Relay Station in Singapore, to get their 0600 release to Australasia through, because signals from the UK bases were not getting through. They are still using 15.360 MHz from 0600 until 0615 UTC, with this arrangement. Now they have been forced to utilise one of the old faithful channels from another site, because of the days getting shorter over in the UK. So the Antigua base, in the Caribbean now has moved onto that channel from 9.510 MHz, where it had previously been suffering co-channel interference from an Algerian station that was 1 kHz low, causing a very nasty heterodyne. And the move has paid off!

WATCH FOR CHRISTMAS PROGRAMMING

Do not forget the special Christmas programming that the BBC World Service usually emit during the Yuletide Season, culminating with the Queen's Christmas Message at 0930 UTC. This is usually followed by the very beautiful *Festival of Nine Lessons and Carols* from Kings College, Cambridge. Other stations will have special Christmas programming, especially Radio Vatican, with a broadcast of Midnight Mass from St Peter's Basilica and the Midnight Mass from the Church of the Holy Nativity in Bethlehem is often relayed by Kol Israel in Jerusalem.

I do not have the approximate times or frequencies available at the present time, as this is being written in mid-October. So a little eavesdropping will be in order around Christmas Morning, from 2200 UTC until 0130 UTC on the 25 or 31 metre bands.

IT'S GOING TO HAPPEN

In a recent column, I happened to mention that it was rumoured that the *Christian Science Monitor* was going to purchase KYOI — Super Rock Well, this has, in fact, happened! I have not heard KYOI lately so perhaps they are preparing for the conversion to come on-stream about the same time as the State-side operation is going to commence, early in 1987.

NDXE (pronounced in Dixie)

Yet another station is not on-air! The much-vaunted NDXE, which was reportedly going to transmit with AM-Stereo or HF has not appeared, and the consensus amongst the State-side fraternity is that it might not, although it is heavily into promotional material eg cups, licence plates, a 3D holographic card and other trinkets. Most will believe it when they hear it! By now, it may be on the air, but don't hold your breath waiting.

THE MOST . . .

One station that I would vote as the most improved broadcaster in 1986 would be Radio Beijing. Compared to programming 10 or 15 years ago, when there was Maoist rhetoric and not much worth listening to, RB today is quite refreshing and interesting to listen to, especially their World News, plus Domestic News bulletins. They have nice musical interludes and interesting interviews, with a minimum of propaganda. Radio Pyongyang, in North Korea, still remains the most boring and repetitive with endless slogans and propaganda.

We will see what 1987 will bring in four weeks time. Until then, it remains for me to wish you the compliments of the Season and a Happy 1987 to you and yours.

—Robin VK7RH



Intruder Watch

Bill Martin VK2COP
FEDERAL INTRUDER WATCH CO-ORDINATOR
33 Somerville Road, Hornsby Heights, NSW 2077

If you hear an AM station on 14.000 MHz announcing as "Idha'at al-Jamahiriyah al-Arabiyya al-Libya ash-sha'abiya al-Istirakiyya", you could be forgiven for thinking that your receiver has developed added innards! What you would be hearing is the "Libyan Jamahiriya Broadcasting" from Tripoli, which broadcasts a program daily in Arabic, from 1000 to 1600 UTC, or so intruder reports from DJSKR tell us.

This is bad news for amateurs and SWLs in IARU Region 3, but hopefully it will not affect us here in Region 3.

The station has another output on 15.415 MHz, which does not really concern us. Actually, in spite of my monthly lamentations on the intruder problem, we really do not suffer as much as those who operate in Region 1.

In spite of the wonderful distances that radio waves can travel, (except when one is straining to exchange signal reports with a new country), we do not hear the greater percentage of intruder stations which emanate from Region 1, and it appears that we in the antipodes are not only somewhat isolated geographically from the rest of the world, but apparently are also isolated a little with regard to radio propagation. Or so it would seem.

As far as the non-receipt of intruder signals originating in Region 1 are concerned, this is no

load to bear. There are, of course, plenty that we do hear in VK.

Those who helped us to keep an ear on them last August were VK2DEJ, EHQ, MT, PS, OL, Arthur Bradford, VK4AK, SHU, BTW, DA, KAL, KHZ, OD, VK5GZ, TL, VK7RH, VK8BEM, FT, HA and JF.

Intruders using broadcast-mode numbered 303, those using CW-mode 100; RTTY was employed by 68, and 54 were reported using modes other than the preceding. There were 46 stations which identified.

In this column in November, I mentioned that there is some sort of commercial operation regularly on 14.051 MHz, in CW, which is coming from Indonesia. I have written to the Indonesian Amateur Radio Society (OFARI), seeking their help in deal with the problem.

The Intruder Watch Information Pamphlet has been reprinted, and your Divisional Intruder Watch Co-ordinator should now have stocks. If you wish to know more about the Intruder Watch, drop him a line and he will send you a copy.

As I close the column for this month, it is again with great pleasure that I extend greetings for the Christmas season to all, and nominate my wish for 1987 to be — More DX and Less Intruders. Merry Christmas from VK2COP.



VHF HAPPENINGS IN VK6

Two-minute contact was established between Darwin and Koolan Island, when Dougall VK4KUJY8, using 30 watts through a nine element Yagi, worked into Darwin's Channel 8 Repeater on September 10, from 1200 to 1255 UTC and again on September 11, at 1545 UTC. Stations Dougall worked included VK8s ZWM, LM, D, ZED PC, KJJ and TA.

A first for two-metres was created when Brian VK6AHN, Port Hedland, worked Nor VK6UF on Koolan Island. Nor recently bumped his output to 200 watts on FM.

Carnarvon Repeater: VK6RCA has been operational on 146.075 MHz input and 146.075 MHz output. Jim VK6CA, had the repeater running from his QTH in late September and further tests were to be carried out at the Carnarvon Lighthouse, a tower of about 100 feet (30m) right on the coast which should be ideal for ducting up and down the coast. If the location proves suitable, Jim will apply for permanent permission to use the tower. Dave VK6YA had a short QSO with JA on 52.050 MHz, September 12, at 0830 UTC. Signals were S9 and JH8MQZ5 reported hearing VK6RT1, as well.

—From The North West Amateur Radio Society, October Newsletter

OTHR GO AHEAD

The Australian-designed over-the-horizon-radar system, *Jindalee* is to be installed in two, or possibly three sites in addition to the experimental Alice Springs location.

Cross-referencing between the sites will enable surveillance of aircraft and ship movements on Australia's northern approaches.

Radio Amateur Old Timers Club



Kevin Duff VK3CV
Publicity Officer
Radio Amateur Old Timers Club

MONTHLY OLD TIMERS NET

Despite poor band conditions, the monthly News Bulletin and call-backs have been well attended. Thanks to the efforts of the Net Controller, Mac McConnell VK3RV, and his team, the monthly news broadcast and call-back is on three frequencies: 7.060, 3.524 (transmitted by Eric VK3KF) and copied by many interstate stations, and 145.700 MHz FM, for Melbourne listeners only.

The net is on the first Monday of each month, commencing at 2300 UTC. Call in and join the Club.

The President, Secretary, and Committee Members of the RAOCT wish to thank all members for their efforts in making the year, 1996, a very good one for the Club. We wish you and yours a very Happy Christmas and New Year.

The RAOCT Secretary/Treasurer, Harold Hepburn, would like to thank members for donations made over the last few months. We are very appreciative of these. Our finances are not shaky, but certainly a little on the parlous side. We do appreciate the recent donations from Max Austin VK2KZ, Allen Dode VK3AMD, P Sebire VK3MX, Lay Cranch VK3CF, Ron Anderson VK3GM, Eric Ferguson VK3KF, Snow Campbell VK3MR, and Keith Valentine VK3AKB. Thank you gentlemen, for your efforts.

ODE

Lives there a ham with soul so dead
Who never to himself has said:
"What in heck has that mailman done
With the card from Contact Number One?"

VALVE BANK

This is not like the Blood Bank. It is more like a Heart Bank if you have a piece of equipment that is a valve transparent. It is being run by Ron Higginbotham VK3RR, who is collecting donations of old valves, testing them as far as possible, and making the usable ones available for sale at 50 cents for receiving types and \$1 to \$2 for transmitting types — with a "money-back" guarantee.

The proceeds go to club funds. If you could use a re-cycled valve, see Ron; or if you have a box full of old valves that you do not have the heart to throw out, Ron will be pleased to take them off your hands.

—Extracted from the Moorabbin and District Radio Club Newsletter APCR, September 1996

RAOCT LUNCHEON

The Annual Victorian Luncheon of the RAOCT was held on Wednesday, September 24, at the Melbourne City and Overseas Club. It was well attended with 39 members being present. This was purely a social event and all enjoyed the cuisine and meeting old friends and new ones.

RAOCT President, Max Hull VK3ZS, was Master of Ceremonies. Apologies were received from 11 members from three States. Max told us that Gavin Douglas VK3YK, had suffered a mild stroke, but is now recuperating. He assures us that he will be attending our next function and sends best wishes to all of his friends. Best of 73 to you Gavin for a speedy recovery, from your RAOCT friends.

Graham Butherford VK3AGS, a recent member, attended this function and was "welcomed aboard" by the President and all members. 73 to you Graham.

Max Hull told members a very pleasant and interesting story. Jim Mansland VK3NY, was licensed in 1931 and was a very early editor of Amateur Radio magazine and continued this well into the post-war years. His son, Allen, who is a school teacher at Mount Beauty, has now completed his full licence and has been allocated his father's call sign, VK3NY. Congratulations Allen

and Old Timers will look forward to hearing you on the air.

Allen Dode VK3AMD, gave an interesting talk on a subject most amateurs know well — that is line OFM from television sets producing interference on the amateur bands, mainly on the 1.8, 3.5 and 7 MHz bands. Help is needed from suitably equipped amateurs who may be able to investigate these problems. If you can help, please contact Allan Foxcroft VK3AE.

There were no official speakers at this luncheon, but Bill Gronow VK3WG, provided some very humorous anecdotes concerning early Wireless Institute exhibitions and the problems involved and solved. He also spoke about going aloft in an DH88 aircraft to sort out the problems with the transmitter. This was done, but the pilot overshot the Essendon Aerodrome and caused havoc with the poultry farm at the end of the strip!! However, second time around they landed safely and all was well.

Ivan Hodder VK3HR, also had a story. He was a Radio Inspector in 1939 and was asked to install a series of radio towers between Alice Springs and Darwin. He was working by himself and some of his stories about the problems of using local help were very funny indeed. He once joined a Lockheed 10 aircraft for a flight to Darwin. He offered his services as radio operator to the two pilots, but because of a mix-up, the pilots thought that he was also a pilot and the result was that he was left in control of the twin-engine plane for a considerable period, even though he had never flown an aircraft before. He found it most enjoyable, however you could imagine how the pilots felt when they discovered that!! This story of Ivan's brought the house down.

Our net controller spoke briefly about the new net frequencies after which this very successful luncheon came to a close.

NOTICED

We are a little ahead of ourselves, but would like to advise members that the Old Timers Dinner will take place on Thursday, March 5, 1987 and will commence at 7 pm. The venue and the price of the Dinner have not yet been decided, but members will be advised about these soon. Mark it in your diary — March 5, 1987 The Old Timers Dinner!

PERSISTENCE

Nothing in the world can take the place of persistence.

Talent will not — nothing is more common than unsuccessful men with talent.
Genius will not — unrewarded genius is almost a proverb;
Education will not — the world is full of educated derelicts.
Persistence and determination alone are omnipotent.

The slogan "Press On" has solved and always will solve the problems of the human race.

—Adapted to have been written by Teddy Roosevelt of the USA

THE WORLD'S LONELIEST RADIO

Located in the Coral Sea, about 400 miles east of Townsville, Queensland, is a small coral island about 500 yards wide. This is Willis Island, the home of the world's loneliest radio station. On this island for a year at a stretch, live two radio operators whose duty is to observe the readings of weather instruments and transmit them to the mainland. By this means the Weather Bureau is able to forecast cyclone warnings, and weather forecasts, at least 24 hours before they would otherwise be able to do so.

The station has been in operation for about 10 years. For the last couple of years, the monopoly has been relieved by the installation of an amateur radio station with the call sign of VK4SK. For six months, the operators see no other human

besides themselves and the only company is that of the ferns, nodules and grasses which come in thousands. (The birds return for egg-laying at the same time each year, within a day or so of the same date, year after year.) Amateur radio enables the operators to obtain news of their friends and relatives and it is the pleasing duty of VK2KY to handle such news, weekly. The transmitter at VK4SK is a TPTG using about 100 watts to a DET 1 tube. The power supply consists of a petrol driven generator and the ORT is a typical 500 cycle tone as used by shortwave marine stations. Work is done on the 3.5, 7, and 14 MHz bands and American listeners would do well to watch for this station on 7 MHz each Wednesday at 715 pm Sydney time and on 14 MHz at 1.45 pm on the first and third Sunday of each month, throughout the year.

The island is surrounded by a coral reef, is 22 feet above sea-level and has a shark-proof bathing enclosure constructed by the operators. Spare time is spent studying, playing golf with sticks and tennis balls and in swimming. As the temperature averages about 80 degrees, the latter is very popular and Willis Island fashions generally consist of shorts and singlets with perhaps a beard if the wearer prefers it to shaving.

How would you like to pound brass at an amateur station like this? No local QRM or background noise! Look for VK4SK and work the world's loneliest amateur station.

—Written by Roy E Abbott VK2KY and published in QST August 1982

(The January 1985 issue of Amateur Radio magazine advises that Willis Island is currently being activated by VK2KR on all bands including six metres. Information about the transmitting times can be obtained from Jill VK6YL, who also handles QSLs.)

WAVELENGTH, FREQUENCY AND LC

VALUE CHART

Back in the middle of the 20s, 'wireless' was booming and hundreds of people built their own receivers. The term 'wireless' was more commonly used than frequency and ascertaining the value of capacity and inductance to tune a required wavelength — let alone understanding the 'Q' of a tuned circuit — was a giant calculation for many. To assist people with the necessary calculations the chart illustrated here was published in the magazine Science and Invention April 1926 issue. This magazine, edited by the famous author and experimenter, Hugo Gernsback, had combined with an earlier magazine by the same editor, The Electrical Experimenter. Later on, these publications became known as Radio News, but perhaps that is another story.

In the aforementioned issue of Science and Invention was a column known as 'Radio Oracle' which was a department of the publication's operation. This chart was the answer to a correspondent's question. It is a unique chart in that it includes the value of the product of LC, obtained by multiplying the inductance of a coil in microhenrys by the capacity of a shunt condenser in picofarads.

To get a typical example, suppose we have a nice condenser in the shack with a maximum value of 0005 μ F and we desire to obtain the inductance of a coil which will tune to 160 metres (1.875 MHz). Referring to the table, we find that the LC value for 160 metres is 007204. Dividing this by the maximum capacity of the condenser (0.005 μ F), we find that the coil to be used with this particular condenser should have an inductance of 14.408 microhenrys. Now, 60 years later, it could still be a useful chart for use in the DC bands. All you really need to know is the maximum capacity of that variable condenser in the junk box.

Chart for Determining the Wave-length, Frequency and LC Value for Radio Frequency Circuits

(f in microhenries and C in microfarads.)

Wave Length (Meters)	Frequency (Kilohertz)	LC Value	Wave Length (Meters)	Frequency (Kilohertz)	LC Value	Wave Length (Meters)	Frequency (Kilohertz)	LC Value
10	36,000.00	.0000282	65	4,615.00	.001188	230	1,304.00	.01489
11	27,272.73	.0000340	70	4,286.00	.001278	235	1,277.00	.01555
12	25,000.00	.0000405	75	4,000.00	.001383	240	1,250.00	.01622
13	23,076.92	.0000476	80	3,750.00	.001501	245	1,225.00	.01690
14	21,428.57	.0000552	85	3,529.00	.001634	250	1,200.00	.01760
15	20,000.00	.0000634	90	3,333.00	.001780	255	1,177.00	.01831
16	18,748.00	.0000720	95	3,158.00	.001941	260	1,154.00	.01903
17	17,646.00	.0000813	100	3,000.00	.002116	265	1,132.00	.01977
18	16,667.00	.0000912	105	2,857.00	.002305	270	1,111.00	.02052
19	15,789.00	.0001016	110	2,727.00	.002509	275	1,091.00	.02129
20	15,000.00	.0001126	115	2,609.00	.002727	280	1,071.00	.02207
21	14,286.00	.0001241	120	2,500.00	.002960	290	1,034.00	.02366
22	13,635.00	.0001362	125	2,400.00	.003207	295	1,017.00	.02450
23	13,043.00	.0001489	130	2,308.00	.003470	300	1,000.00	.02533
24	12,500.00	.0001622	135	2,222.00	.003750	310	967.70	.02705
25	12,000.00	.0001761	140	2,144.00	.004048	320	937.50	.02883
26	11,538.00	.0001903	145	2,069.00	.004365	330	909.10	.03066
27	11,110.00	.0002052	150	2,000.00	.004699	340	882.40	.03255
28	10,713.00	.0002207	155	1,935.00	.005050	350	857.10	.03448
29	10,343.00	.0002368	160	1,875.00	.005420	360	833.30	.03646
30	10,000.00	.0002533	165	1,818.00	.005809	370	810.80	.03849
32	9,375.00	.0002883	170	1,765.00	.006214	380	789.50	.04055
34	8,823.00	.0003235	175	1,714.00	.006636	390	769.20	.04277
36	8,333.00	.0003648	180	1,667.00	.007074	400	750.00	.04503
38	7,894.00	.0004063	185	1,622.00	.007529	410	731.70	.04733
40	7,500.00	.0004531	190	1,579.00	.008001	420	714.30	.04966
42	7,143.00	.0004966	195	1,538.00	.008489	430	697.70	.05204
44	6,818.00	.0005346	200	1,500.00	.009000	440	681.80	.05446
46	6,522.00	.0005660	205	1,463.00	.009534	450	666.70	.05693
48	6,250.00	.0005945	210	1,429.00	.010091	460	652.20	.05945
50	6,000.00	.0006204	215	1,395.00	.010671	470	638.10	.06219
55	5,454.00	.0006852	220	1,364.00	.011264	480	625.00	.06505
60	5,000.00	.0007414	225	1,333.00	.011879	490	612.20	.06799
						500	600.00	.07099

The chart for determining wave-length, frequency and LC values often comes in handy for use in various radio calculations. Clip this table out and keep it for reference.

Table 1.

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TECHNICAL MAILBOX



This is when I decided to install a bridge rectifier in the power input, so it would not matter which way the power was applied and the set would still work. The set worked okay the next day so I had a happy customer (with a weird vehicle). He rang to give me the good news.

I have used this method regularly since that memorable week, and the hassle of arguing with customers has vanished. I would recommend it to anyone who has any electronic equipment that is connected and disconnected regularly for a DC source, as it can save a lot of heartache.

The choice of the bridge will depend on current drain of equipment. Five amps would be suitable for some car radios, small echo sounders, CBs and cassettes. (Be warned however, that this is only applicable when the negative lead is not connected to the case — Tech Ed). For larger current equipment, a 35 amp bridge could be used, but be sure to bolt them to somewhere suitable for heat transfer.

The power input goes to the normal AC input to the bridge, and outputs from +ve to switch, -ve to -ve rail.

(The protection diode is now somewhat superfluous with Bob's modification, but, of course, it can be left in as a "belt and braces" approach — Tech Ed).



Awards

Ken Hall VK5AKH
FEDERAL AWARDS MANAGER
St Georges Rectory, Alberton, SA, 5014

AWARDS ISSUED RECENTLY

DXCC

PHONE

349 Ken Watson VK2CKW
350 Ian Thomas VK3DNC

CW

127 Ian Thomas VK3DNC

VHFCC — 52 MHz

118 J A Roberts VK1ZAR

WAVKCA

1501 Jim Takamatsu JF2FMP
1502 Nicholas E Moon ZS6BBY
1503 Nariaki Murasato JH8C1
1504 Osamu Kobayashi JH3CBN

WIA 75 AWARD UPDATES

Certificate No 680 — Made Aryssa HC3HB
Certificate No 681 Zenon Pietrzak SP6FER

PERMANENT AMATEUR IN SPACE???

Representatives of NASA, AMSAT and ARRL met recently to initiate a long-term program which could lead to amateur radio literally being built into the NASA Space Station.

A working group was formed to develop the basis for a plan which would lead to a formal proposal to NASA during 1987.

—Abridged from The ARRL Letter September 29, 1986.

DC POLARISATION PROTECTION FOR MOBILE RIGS

Bob Geeves VK7KZ, of Hobart, has provided insight into consumer products where the customer is always right, but the electronic evidence provides conclusive evidence that it was not the case.

Bob provides a simple modification carried out on a CB rig that forces the user to get it right!

Here is Bob's suggestion, noting that it is only applicable for equipment that does not have the negative supply connected directly to the equipment case.

Most readers will be aware that the DC input circuits of most CBs, mobile amateur rigs, marine electronics, etc have reverse polarity protection in the form of a diode across it to cause the fuse to blow if connected incorrectly.

In my experience, over many years of servicing such equipment, the most common fault is just that.

Whether it has been that the battery has been taken out and replaced in a vehicle the wrong way around (yes, some people even open up the negative terminal and squeeze the positive to fit it), sheer ignorance of what red and black means, the more frequent use of two red leads, one with a black trace along it causing confusion, it happens regularly.

I had a case some years ago where a unit came in smelling badly of burnt wiring. On inspection, it was found that it had an unknown 35 amp fuse in the power line, the polarity protect diode had melted in half, the power leads inside the set had been on the verge of fire, and tracks on the PCB had changed colour.

This was a typical case of the wrong polarity. The diode had caused the original two amp fuse to blow. The customer replaced it with one size bigger and tried again. The diode by this stage was dead-short, so it blew the second fuse. A 35 amp fuse was installed, the power hooked up again, and "smoke appeared from inside the set with funny crindly sounds."

Time to take it to the doctor.

I repaired the unit and told the customer that it had been put on the power back-to-front.

I also explained that it would have been worse if he had switched the set on, because luckily the protection diode was before the ON-OFF switch, so the reverse polarity did not get to the rest of the set.

Next day, back it came. The customer was extremely angry having to bring it all the way back from the country.

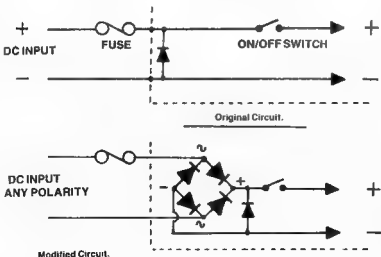
Sure enough, same problem. I fixed it again and told him once again it was connected back-to-front, and to please check which is positive and which is negative.

A newly educated customer left happily. I hoped, as I only charged for the new diode — no labour.

The next day he was back! "Same thing happened — b...y fuse blew, but I did not try any more and I checked the polarity thing!"

I thought I would be smart and put a diode in series with the positive power input before the protect diode. At least it would not go if reversed, and would not do any damage. Away he went after I proved to him that it worked.

Next day he was back again! "The fuse didn't blow, but it won't go at all when you switch it on!"



Pounding Brass

Marshall Emm VKSFN
Box 388, Adelaide, SA 5001



Before going on to the general business for the month, it is with a great deal of regret that I must advise readers that this will be my last column for some time. There are a number of reasons for seeking a "leave of absence," not least of which is the conviction that it is time for someone else to take over and bring a breath of fresh air to the column. Arrangements are not final as I write this, but it is my sincere hope that someone else, who feels as strongly as I do that CW deserves to survive and that its operators need a voice in Amateur Radio, will take up the challenge.

It has been a great deal of fun, and an education, writing *Pounding Brass* over the last four and a half years. The column began because there was a lack of material for CW operators in the radio publications at the time, and I felt that newcomers to the hobby needed to be provided with some assistance and encouragement so that they might become good, effective and enthusiastic CW operators. Judging from correspondence received over the years I am proud to say that the original aim of the column have, by and large, been met.

Through correspondence generated by *Pounding Brass* I have made many friends with similar interests in CW and without whom the column would not have survived as long as it has. My thanks to all of you, and I hope you will offer a similar level of support to my successor.

Under the heading of "hiding up loose ends," you might recall that in the June edition of this column there was a suggestion that a "shoot-out" would prove that CW message handling is faster than phone. Readers were invited to take up the challenge and, if enough interest was shown, a formal event was to have been organised. Well, the good news is that a number of readers were willing to have it! The bad news (depending on how you look at it) was that those who responded did not include a single phone operator! I therefore declare CW to be the winner by default!

Bill VK2MUS, wrote recently describing his early days as a telegraphist, and I found it very interesting reading:

"It seems strange to read of the many computer programs and similar schemes for learning Morse these days. As a telegraph messenger in a country town you were given a copy of the Code, access to a practice set and hopefully the postmaster or postal clerk could find time to give you some receiving practice. If you passed the test, your tutor received a bonus of £12.

"There was no classroom-type training until after WWII for Post Office staff. Full time telegraphists went to the Telegraphists-in-Training Class, in Sydney for training in machine systems but had to be qualified in Morse before being accepted. Country Morse tests were conducted over actual lines from the CTO in Sydney and involved sending and receiving something like 40 telegrams — rather different to the few words of the DCC test.

"Most of the smaller country Post Offices shared a line with several other offices, each having its own call sign. I started work at Culcairn (CO) and other offices on that line were The Rock (HG), Henry (HJ), Walla Walla (WP), Baldie (AS), Corowa (CW), and sometimes Oaklands (OD). The line was controlled by the Sydney telegraphist who worked each office in turn.

"The circuit was voice frequency from Sydney to Wagga Wagga with single wire physical line from Wagga Wagga to the end of the line, with earth return. If the line went open circuit on the country side of an office, contact could be re-established by putting that side to earth. Signals

were virtually tuned in on the adjustable relay, which operated the local sounder circuit. If the relay was out of adjustment it was possible for signals to be passing through an office without being heard. If adjustment was needed, the sending operator would be asked to 'WRITE PL'S' and he would send something out of his head before being given 'GK' to commence transmission. It was usual to send 'TTS S' and receive 'S OK' after five telegrams as it was possible to be 'singing to the wind' and have to repeat them.

"Cutting it up, as per the Spruhan poem (*Coming Round the Bend*) was only supposed to be used for press telegrams. There was an official list of abbreviations in the Postmaster's Instructions book. However, at busy offices, particularly on Saturday mornings, abbreviations were often used on greetings telegrams such as congratulations, birthday or wedding messages. There were various ways of speeding things up 'you were not too popular if you had to open the key on a fast operator to count the words for the word check at the end of the message. A common way of avoiding this was to put a double space (typing every five words). If there were supposed to be, say 18 words and you finished with three on the end, there was no need to count. When you were part way through receiving a telegram you dropped another form into the typewriter so that it followed the first one around the platen — saved a second or two and a possible fumble when grabbing a form in a hurry! These things were necessary because some slick operators scarcely paused between telegrams. Although it was not allowed officially, some timed their messages off with their left hand while sending with the right. Timing off consisted of putting a batch number, line number, time of transmission, and initials. It takes quite a lot of skill to do both together."

Some of you may wonder what all this old-time telegraphy information has to do with amateur CW operation. Well, all I can say is it is our heritage. It is a very large part of how we came to be high-tech electronic brass pounders, and there is always something to be learned. For example, Bill's letter reminded me of an early exposure to amateur CW operation, where I saw someone sending with his right hand while logging with his left. Wish I could do it!

Some tricks of the trade are so natural that they are almost universal, such as continuously feeding forms into a typewriter (I used to do that with index cards when I was at uni). Radio operation tends to follow similar patterns around the world, partly because one instinctively tends to mimic one's peers, and partly because one deliberately remembers and tries to implement better ways of doing things. Amateurs around the world work with each other and develop for their own convenience standard ways of communicating. But I wonder how similar land-line telegraphy operations were in, say, rural Australia and rural America. For that matter, how did domestic telegraphy compare with international cable operations?

Since it has not been mentioned for some time, and there are probably many more of you out there who own IBM PCs or clones, I would like to take this opportunity to remind you that I have developed a Morse training package to run on the PC. It has undergone considerable revision, and now, in addition to the keyboard echo feature, and generation of random practice groups and words, it now has the ability to send "speed words" and convert any text file on the PC to Morse code. Send a SASE for full details.

Tony G4FAI, has advised of a new international publication for Morse operators. It is called *Morsum Magnificat*, and is published in the

Netherlands, with an English version edited by Tony. *Morsum Magnificat* is written by, and for, Morse addicts. The intention was to find and bring together the history, illustrations, anecdotes and adventures of Morse telegraphy, wire and wire-less, to save them for posterity. *Morsum Magnificat* is published quarterly, and an annual subscription is £A13.

Send details and your remittance to Rinus Heffemans PABOFN, Hofweg 187, 4823 XD Bergen op Zoom, Holland. Cash is preferred to cheques, but if you are wisely reluctant to send cash through the mail, you can send an international bank draft for £8, payable to "Morsum Magnificat" care of Tony Smith G4FAI, 1 Tash Place, New Southgate, London, N11 1AP, England. The efforts of these keen CW enthusiasts deserve support.

Tom VK4TL, mentioned a contact recently with a fellow who had not been able to "master a Morse key" but, as he was interested in the mode, he was using a stapler and a piece of wire. Tom says his signal formation was good, but as might be expected, there were a few break-downs.

Finally, Harrow VK3CHM, sent a clipping from *The Age*, August 19, 1885. Well, actually it was in the *Happening* 100 years ago column. It is worth quoting:

"The Postmaster-General has decided to introduce into the telegraphic service a system of prizes medals and certificates for efficiency similar to that in force in America. The object is to foster an interest in the study of telegraphy amongst the operators. The prizes will be divided into four classes. In the first class, a gold medal will be awarded to the best transmitter of messages, and a silver medal to the second best. Similar medals will be awarded to the best and second best receivers of messages. A special gold medal will be given to the operator who proves his superiority in every branch. The test examinations will take place about November. It is the intention of the Postmaster-General to also award a gold and silver medal for the best and second best essay on the progress of electrical sciences during the present year."

What a clever ideal! Of course, that was back in the days when initiative was rewarded, not taxed.

Thanks again for your attention and interest over the last few years. My very best wishes for an enjoyable holiday season, and 73 until next we meet.

FRED READY TO HELP DISABLED

○ An Australian microcomputer-based video training aid for the disabled, based on the television home computer and games concept, is now on the market.

It is called the friendly rehabilitation and education device (Fred). The basic design allows for control of the unit by two joysticks, but provision is made for tailor-made switching to suit special needs.

From inception, Fred was designed with the needs of the disabled in mind.

It is not a standard consumer product modified, but an aid for therapists and teachers who work with the disabled.

It produces colourful displays moving at graded speeds on any standard colour television receiver.

Program cartridges will offer a variety of games, educational packages and exercises, each with selectable levels of difficulty and skill.

—Continued from electronics news September 1988



Electro-Magnetic Compatibility Report

Hans Ruckert VK2AOU

EMC REPORTER

25 Berrille Road, Beverly Hills, NSW, 2209

The West German electronics magazine *Funkschau* published in 1974-75 a number of papers on EMC technology. The aim was to inform the public about the need for electronic entertainment equipment and other appliances designed so that the equipment is immune (sufficiently selective) to legally transmitted signals from other services not meant for entertainment. These publications described:

- EMC television receiver front-end
- Selective antenna preamplifiers
- FTZ (DOC) testing methods (approval of manufactured and imported appliances)
- FTZ (DOC) EMC standards

They also included:

- Addresses and telephone numbers of 72 radio inspectors' offices
- Names, addresses and telephone numbers of 121 appliance manufacturers and importers who had offered to assist in EMC problem cases

- Filter designs and response curves from appliance producers and from several special filter manufacturers were also published.

All this work was done more than 10 years ago and the many technical problems solved, as the following publication shows:

Funkschau, No 24, 1974 by the late Egon Kock DL1HNE

translated by Hans Ruckert VK2AOU

RF Radiation-Immune Colour TV Front-end
Television sets may be affected (TVA) by unwanted RF radiation, which may be picked up by the television chassis, the television aerial, the mains power line or via the attached cables and appliances (VCR, Hi Fi equipment, computer etc).

The Immune TV Tuner
(A Grund circuit, Figure 1, typical of 1974 West German design)
It is important that television front ends are

equipped with a high-pass filter with 48 MHz cut-off frequency and input band-passes for television band I, band II and UHF. The filter response should have a steep cut-off slope to protect the control electrode of the RF stage transistor. These, and sometimes needed add-on filters, work only as intended if the chassis earthing points have been correctly chosen (provided there is a metal chassis). It is also important that protective diodes, used against atmospheric discharges picked up by the antenna, are placed correctly to avoid rectification, modulation and production of harmonics. The circuit shows a shielded high-pass filter at the antenna terminal, which attenuates all unwanted signals below 40 MHz from short-, medium- and long-wave transmitters. Not all manufacturers do this. Consequently, the pin diodes Di-51, Di-52, Di-54 and the protective diodes Di-56 and Di-57 cannot cause interference. We find next a series tuned LC trap with C-57, which is tuned to 145 MHz to suppress two metre amateur radio transmitter

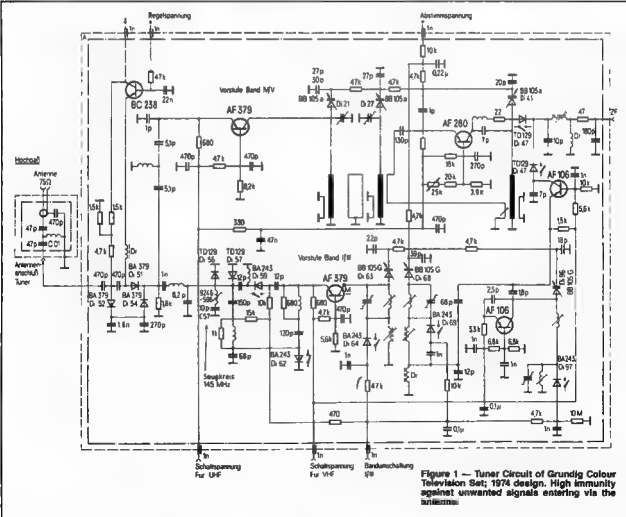


Figure 1 — Tuner Circuit of Grundig Colour Television Set; 1974 design. High immunity against unwanted signals entering via the antenna.

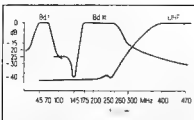


Figure 2 — Tuner Selectivity of Grundig Colour Television Set; design 1974.

signals. The passband filter, which is switched by diodes D1-59 and D1-62 (television band I and band II) has steep slopes to improve the selectivity by rejecting further out of band signals. Both tuner preamplifier stages use high current transistors AF-379, without gain control, which improve greatly the dynamic range of the preamplifier. They operate with constant operating conditions. A 100 mV input signal at the emitter causes only one percent cross modulation, but some popular transistors can only take 15-20 mV. Any remaining unwanted signals are further rejected by the following passband filters, which are tuned by capacitive diodes. Figure 2 shows the television front and selectivity achieved. It shows also the 30 dB dip caused by the 145 MHz trap. An easy to plug in additional high-pass filter with 48 MHz cut-off response is being made available, as also is a high-pass filter for above 175 MHz (if VHF band I is not used), to deal with extremely difficult cases.

Direct RF Pick-up by the Chassis Components and Leads

The most important aspect was the total shielding of the complete IF amplifier, to which the shielded tuner is connected via a short coaxial cable. It was also necessary to use ceramic feed-through capacitors to remove RF from the tuning voltage lines of the electronic tuning circuit. Of extreme importance was the selection of the correct earthing points for the various circuit groups and their connecting leads and coaxial cables, to avoid bypassing of the tuned circuits and filters.

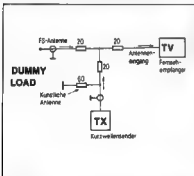


Figure 3 — Immunity Testing of a Colour Television Set on Amateur Bands with transmitter and Preamplifier as unwanted signal source. At up to 100 volts RMS level on 3.6 MHz, no TVA on Grundig Television Resulted.

Testing of Immunity at Radio Amateur Frequencies

Figure 3, Grundig method 1974-75. The transmitter FTDX-500 with the linear amplifier FL-200dB are connected to a 60 ohm dummy load. A 6 dB power splitter connects the transmitter output stage to the television antenna terminal. The transmitter was single tone modulated on the 80 metre band, but there was no picture or sound interference despite the 100 volt RMS transmitter level.

Similar results were achieved using a ground plane transmitter antenna (a dipole for 80 metres)

only 1.9 metres away from the television antenna, and the transmitter operating with maximum power on the 40, 20, 15 and 10 metres bands. With 600 watt ERP at 145 MHz and about seven metres antenna separation resulted also in TVA free operation.

EMC achievements of this degree obtained by Grundig and most other West German manufacturers were of course not only appreciated by radio amateurs and their neighbours. The radio inspectors of the postal department (FTZ/DOC), service departments of television manufacturers, and the service men of appliance dealers saved time and costly, often frustrating, jobs finding the cause of TVA (also TVI and ITV) while trying to improve the compatibility (selectivity, immunity) of television sets and other appliances or services. But there were fewer cases for the lawyers!

More recent development showed that with improvement of the chassis earthing point selection similar EMC values could be achieved with fewer components. Readers may compare this television circuit with that of their own television set circuit. The comparison may indicate why filters do not help and why they experience TVA. Caution: with most televisions it is not advisable to conduct the EMC test described above with 100 volts of amateur band RF at the antenna terminal. The television front end may "go up in smoke!"

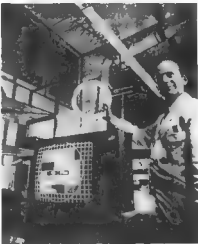


Figure 4 — The signal from an amateur radio transmitter is so strong above a Nord-Mende colour television set that a hand-held fluorescent light shield with full brightness. The amateur band beam and the television antenna are less than two metres apart and above the television set. No TVA result!

Several other West German companies also achieved very high immunity levels for their television chassis, avoiding RF pick-up by the chassis components and wiring. CQ-DL magazine 2/1978 (Figure 4) shows a Nord-Mende colour television set three metres underneath a mobile antenna and the RF field of a Heath SB-401 transmitter, with the television antenna nearby. The RF field was so strong, that a hand-held fluorescent light shone with full brightness! The next photograph shows the compact television chassis with individually shielded plug-in modules in the metal frame of the Nord-Mende colour television set. There are no unshielded hinged printed boards, acting like a receiver dipole, or wires going all over the place like an untidy bird's nest (Figure 5).

The problems still existing in DL are those millions of television and broadcasting receivers, which were manufactured and/or imported prior to the EMC efforts of the FTZ (DOC), the DARC, DIN (Standards) and VDE (Engineers' Associations) leading to the updated 1981 EMC Standards Law.



Figure 5 — The compact colour television chassis of a Nord-Mende receiver with individually shielded plug-in modules on a metal chassis. Correctly chosen earthing points and this shielding avoid RF pick-up by the chassis and leads. This results in a very high immunity level.

Even now some people are reportedly trying to bypass or to water-down the immunity standards. That is why DL8AH (CQ-DL 7/1988) recommends taking a two metre hand-held transmitter to the shop, if one intends to buy a television set or Hi-Fi receiver amplifier. By holding the 1.5 watt rig close to the television set, etc one can get at least some idea of the immunity or lack of it. He describes also a small homemade 80 metre transmitter whip antenna and loading coil. By moving the antenna at 10-20 cm distances around a VCR, the one watt power from the transmit rig shows clear which VCR not to purchase. How popular would he be in our shops?

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TEFLOCK CONNECTOR

Teflock PL259 connectors, marketed by Captain Communications, fills the need for a high quality UHF and HF connector for RG58 cable. Unlike older designs, the Teflock can be secured in seconds, without soldering or risk of shorting. The centre conductor can be crimped or soldered, enabling quick, easy fitting away from the workshop. The braid and outer sheath are held to the connector by the shield lock.



For the novice, or anyone who is not expert at making up cables, the Teflock is the only connector worth looking at. Its high temperature Teflon insulator will not surrender, even when attacked by monster soldering irons!

The Teflock is Australian designed and manufactured, is actually cheaper than imported PL259 plugs and is easily re-usable.

For further information and pricing contact David Gil, Captain Communications, 28 Parkes Street, Paramatta, phone (02) 633 4333.

EASY RTTY ON A COMPUTER

The latest version of the MFJ-1224 RTTYASCII/AMTOR/CW computer modem is now available from GFS Electronics.

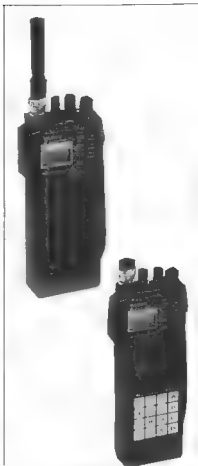
Designed to interface between a computer and radio transceiver or receiver, the unit will allow coupling of all the above modes when appropriate software is used. As supplied, it is ready to go to air on a C-64 or VIC-20 personal computer. CW RTTY software and cabling is provided.



A unique feature which enables readability in extremely noisy conditions is a sharp eight-pole active filter preceding the receiver detector which serves to clean-up a bad signal before presenting it to the detector.

The modem copies on both mark and space-tone, not just mark-only or space-only. Tuning in a signal is made very easy with a special built-in two LED tuning indicator. A wide range of transmitter keying facilities are provided, along with TTL and current loop outputs to drive a mechanical RTTY machine.

For further information contact GFS Electronic Imports, 17 McKeon Road, Mitcham, Vic. 3132. Phone (03) 873 3777.



YAESU TRANSCEIVERS — FT-23R/73R; 727R & 767GX

The FT-23R and 73R are ultra-compact, microprocessor-controlled handies that offer the convenience of very small size and lightweight without limitations of features and performance.

Both units feature 10 memory channels which each store repeater shifts, busy channel and priority channel scanning, 1 MHz up/down stepping and a top panel rotary dial for memory and frequency selection. The LCD display includes a bargraph S/P.O. meter.

The FT-23R covers 144-146 or 144-148 MHz, whilst the FT-73R covers 430-440 or 440-450 MHz. A full range of accessories is available.



The FT-727R is a completely self-contained VHF/UHF FM hand portable transceiver providing up to five watts or 0.5 watts RF output on user-selectable channel steps across both the two metre and 70 cm FM amateur bands.

A full range of options are also available for the FT-727R.

The logically grouped controls on the FT-767GX make it easy to use, although on first appearances the unit's front panel is a mass of "whiz-bang" knobs and buttons. It is a HF/VHF/UHF all-mode transceiver.



The FT-767GX has through-chassis duct flow cooling which allows continuous key-down transmission for up to 30 minutes. No external heavy-duty power supply is required and the entire top half of the unit is diecast aluminium. A built-in automatic antenna tuner is incorporated in the unit. If the SWR exceeds 1.2:1 the tuner automatically retunes the antenna.

For further information and prices of these Yaesu transceivers contact Bail Electronic Services, PO Box 508, (or 38 Faithful Street), Wangaratta, Vic 3677. Telephone (057) 21 6260.

- Complete range of **MIRAGE (USA)** equipment including 6m, 2m and 70cm amplifiers, also peak reading watt/SWR meters. All have a five year warranty.

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December

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MR RON KINGSTON, MR ROBERT WILSON, MR JIM MILTON, MR FRANK KERMECI,**

THE CSIRO, THE DEPARTMENT OF COMMUNICATIONS, MOBILE ONE PTY LTD, DICK SMITH ELECTRONICS PTY LTD, HAM RADIO OUTLET — USA, ANDREWS COMMUNICATIONS, ADVENTURE BROADCASTING COMPANY, AUSLEC AUSTRALIA, ALCAN AUSTRALIA, THE UNIVERSITY OF NSW, HIGH TECH AUTO TOOLS PTY LTD, VK2AFS AND STAFF.

Club Corner

SYDNEY AMATEUR DIGITAL COMMUNICATIONS GROUP

The Sydney Amateur Digital Communications Group has been involved in the task of implementing the CCITT X.3 Terminal Interface Protocol (TIP) into the existing Amateur Packet Radio AX.25 Protocol. The SADCg is the first group in the world to do this, the Vancouver Amateur Digital Communications Group (VADCG) had implemented the X.3 TIP into the Vancouver Protocol.

The implementation of X.3 TIP into the AX.25 protocol puts Australia in the front line of worldwide amateur packet radio development, as up to now, the US and Canadian amateur radio groups have dominated development.

Currently, the AX.25/X.3 version is only available to users of VADCG Terminal Node Controllers (TNCs), but it is expected that TNC manufacturers will adopt the X.3 TIP standard, which will be commonly known as AX.3 TIP as it features some extra commands that are only found in an amateur radio environment. The CCITT X.3 TIP recommendation is most commonly used in commercial packet systems.

—Contributed by Steven Blanche VK3FJ, Secretary SADCg

WESTERN ZONE

Western Zone WIA members are advised that the next Zone Meeting will be held at Lake Bolac, on Saturday, December 13, 1988.

—Contributed by Ray Curran VK3DGN, Secretary Western Zone

ST GEORGE AMATEUR RADIO SOCIETY

Over the last year, the St George Amateur Radio Society has been active both on and off the air.

In January 1988, the Society held its first two metre DX contest for the festive season. It was during the month The joint winners were Bill VK2AGF, Warren VK2KGN, Lewis VK2LS, and Clive VK2DGE.

March saw the annual Alan Pettiford Memorial Auction with over \$5000 of equipment, bits and pieces (and junk?) going under the hammer. Also in March, a number of club members set off to Mount Bindo, near Jarrigon, Caves, west of Sydney, to fix the club's DX repeater and to activate the club call sign VK2LE for the John Moyle Contest.

April saw the Annual General meeting with the major change being Don VK2PD, taking over from Alan VK2DGP as President. Gordon VK2BGA, received the Viv Madmen Bequest Award for his talk called *When the Time Comes*, based on his work as an undertaker.

In June the club applied for and received the special call sign VK2IYP for the International Year of Peace (but, because of a typographical error, the call received was, in fact, VK2IYP). The call has been used quite a number of times including the Novice, St George 80 metre and Remembrance Day Contests.

The club held its second 80 metre contest in July, a four-hour free-for-all one Friday evening to help promote the club, the St George Award, and to get practice for the RD Contest. The winners for this year were Peter VK2EMU, Clive VK2DGE and Bill VK2AGF.

Phil VK2AXS, John VK2AUZ, and Geoff VK2SA, so much liked the idea that they decided to activate VK2IYP portable, at Mount Bindo for the RD Contest and managed over 350 contacts, but swore that next year they would go somewhere a little warmer (at least above freezing!!). About a dozen other club members were active in the contest.

September saw the renaming of the alternate auction to the *Shakespeare Auction* in appreciation of the tireless work Bill VK2AGF has given to the club since it was formed in 1971, particularly with the auctions. Because of the increasing size of the auctions, it has been decided to change them from weekday evenings to a Saturday afternoon.

Now on the downhill run for the year, the club still has the Annual Dinners and Christmas Picnic to come before it all starts again in 1987.

The members of the St George Amateur Radio Society would like to wish everyone a Merry Christmas and a Happy New Year.

—Contributed by Peter O'Connell VK2EMU

VICTORIAN DISABLED CITIZENS' AMATEUR RADIO GROUP — VK3APU

The radio club is in the process of a membership drive to get the operation of the club set up in the eastern suburbs of Melbourne. An invitation is extended to disabled people and people generally, to take an interest in amateur radio.

The club seeks new members to form a new committee to run the club under the support of the Victorian Disabled Citizens Association. The club requires a venue to be set up, close to rail transport and asks for suggestions as to where the club may be established. It must be noted that a suitable venue must have lockable security for the storage of club property under the Department of Communications rulings. The radio club has equipment ready for use immediately it has a venue, however it is in need of a full call licensed radio amateur to act as the club's nominee in accordance with regulations.

To bring these objectives to fruition, the club invites interested parties to come together at an agreed time and place to discuss matters relating to the club's functions.

Interested people may contact the club by writing to: Michael Byers, President, Victorian Disabled Citizens' Amateur Radio Group, PO Box 486, Ringwood, Vic. 3134, or telephone Michael Byers on 722 1645 or Kelvin Lee 391 6310.

The Disabled Radio Amateurs' Club has been operational for over 13 years and has achieved a great deal of success, it is therefore envisaged that the Victorian Disabled Citizens' Amateur Radio Group will achieve the same successes.

—Contributed by Kelvin Lee VK3ZSO, Member of DRAC and VDCARG

DEVIL NEWS from the North-West

There were 16 members and two visitors in attendance at the last meeting of the club. Apologies were received from VK's ZAP, KH, RN, AX and Florian Blum, who is on a visit home to Switzerland. A warm welcome to new member, Gordon Pax. Gordon is interested in the technical side of radio and micro-computers.

The business side of the meeting was dealt with swiftly and a very interesting evening of discussion followed. Final details were discussed for Camp Quality which will be held from December 8 to 14. It is pleasing to report that there is more than enough volunteers, and plenty of equipment in the way of radios and aerials has been loaned for the time required.

It was announced that an Amstrad Computer Group has started in the North-West and any owner interested is welcome to attend their meetings.

One of our new members, who has been very active in the club as News Co-ordinator for the Branch since arriving from VK5, has left to live in VK1. Thank you Frank VK7ZTH, for all your help in the short time you were in Tasmania and best wishes to you and your family in the future.

There will be communications activity at Easter time at the Horse Trials. There has been a good response from members and it appears there is enough volunteers.

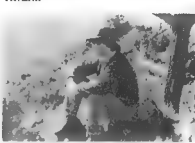
The Club Radio Room is almost ready for habitation, there is only the carpet to be laid, so volunteers help is sought.

ACTIVITIES WEEK FOR DEVONPORT HIGH SCHOOL — VK7DHS

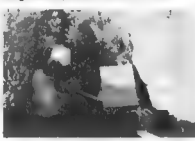
Tony VK7AH, and his group had a very successful week. Activities included a tour of the Able Tasman Wireless Room and a demonstration of



From left: Andrew VK7ZHA and Andrew VK7ZAP



Greg VK7ZBT, rests on Mount Duncan.



Andrew VK7ZAP and Tony VK7AX, attended the installation of the special communication repeater, VK7RAD, on Mount Duncan.

life-boat drill, a walk to the summit of Mount Duncan to the site of one of our repeaters, a display of Army radio and a field exercise in trucks and jeeps to witness radio demonstrations.

Tony thanks all who assisted with the activities, and especially to Jack VK7WJ, for his assistance with lectures and the amount of time he gave.

WIRELESS TV REPAIR

The first meeting of the group was held on October 15, at the home of the group leader, Tony Bedeph VK7AX. There were 13 in attendance.

Tony said that it should be emphasised that this is not a "splitter group" to the Wireless Institute of Australia, and is to support the Institute as required.

The evening was spent discussing the group's plans and intentions, which include the promotion of ATV activities amongst amateur radio members in conjunction with other radio activities.

It is hoped to encourage activities and provide assistance to interested people, support and maintain VK7RTV and VK7RAE repeaters, encourage outdoor activities using portable video equipment, provide assistance to organisations requiring video taping, etc, reintroduce ATV broadcasts and to include the occasional social outing of the group.

Contributed by Max Hadzietar VK7KYI assisted by Tony Bedeph VK7AX, with photographs courtesy Jack Wright VK7WJ

WIA, CENTRAL QUEENSLAND BRANCH

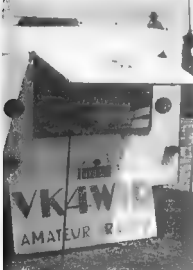
The Lions Clubs of Mount Archer and The Caves, in association with Broadcast Station ARO and the



Lyle VK4ALD (with hat) and Robb VK4TKA



The 20 and 40 metre dipoles for Lelseurefest 1986



Enns Creek Prison Farm, organised a Lelseurefest 1986, from September 19-21, 1986.

The Wireless Institute of Australia, Central Queensland Branch, obtained a site in association with the Rockhampton/Fitzroy State Emergency Service.

The Station VK4WIR was operated on Sunday, September 21, 1986 from 2300 to 0700 UTC. Various visiting stations from the Central Queensland District and Gary VK4PY, from Gympie, called in.

The station was operated with a FT-707 and TS-520 plus various two-metre equipment. Antennas for the day were 20 and 40 metre dipoles and a 15 metre whip.

Even with the close proximity to 4R0 and other electrical devices, the station was able to make contact with the stations below.

VK4BMW Max 7075 Mount Isa

VK4FNQ John 7075

VK4RR Ritchie	7.110 Moranbah
VK3RC/BW1	7.130
VK6ART	14.108 Travellers Net
VK4PY Gary	2 Portable Gympie
VK4OX	2 Portable Gladstone
VK3TE Stan	14.140 Melbourne
VK2DEY Stan	7.066 Murwillumbah

VK4WIR also called into the net after the VK4 News Broadcast on the Sunday on 7 MHz. All stations contacted will receive a VK4WIR QSL card with Thanks/No Return Card Required. For the day, a special information sheet, headed Amateur Radio and You was produced. This was handed out to all likely inquiries.

—Contributed by Nick Ougley VK4NFL

CENTRAL COAST AMATEUR RADIO CLUB

All amateur radio operators, their families, friends and anyone interested in amateur radio, are invited to attend the Central Coast Amateur Radio Club's 30th Annual Field Day on Sunday, February 22, 1987 at the Showground, Showground Road, Gosford, NSW.

Events at the Field Day will include radio and non-radio events to cater for all the family.

The same catering arrangements as in 1986 will apply. You may bring a picnic lunch or purchase food from the Take-away Food Bar in the Showground. Tea and coffee will be available from 8 am to 5 pm (separate from the Food Bar) at no charge.

Accommodation is usually scarce on the Central Coast at Field Day time, and early booking is advised.

Moving trains departing Newcastle and Sydney and arriving at Gosford between 8.30 and 10.30 am, are met at Gosford Railway Station and a courtesy bus is provided to the Showground. For return transport in the afternoon, contact information one hour before the departure time of the train.

The Field Day will be held whether the weather is wet or dry as there is plenty of shelter at the Showground.

Items for disposal must be booked in before 9.30 am on the day. Catalogue forms and lot numbers must be obtained in advance. Contact Bill Smith VK6ZTS, RMB 4525, Gosford, NSW, 2250 or phone (043) 74 1207 after hours, for forms and lot numbers. Late arrivals or equipment improperly tagged or catalogued may be refused. A commission is charged on all sales. Lot numbers and forms will be available at the Showground on Saturday afternoon, February 21, 1987.

Companies, persons, groups or clubs wishing to set up a table or display at the Field Day should contact the Central Coast ARC at PO Box 238, Gosford, NSW, 2250 before January 3, 1987. Any telephone inquiries may be made to John Pogson VK2DBC, on (043) 25 9352 between 8.30 am and 4.00 pm weekdays only.

The VK2 QSL Bureau will be in attendance. Bring your QSL cards for the "Calls Present" board.

For full program details write, enclosing a SASE to CCAARC, PO Box 238, Gosford, NSW, 2250.

—John Pogson VK2DBC, for the CCAARC Field Day Committee

FCC PROPOSES...

The FCC has proposed authorising additional frequencies between 7.050/7.075 MHz for Novice and Technician operators in Alaska, Hawaii, Region 2 Pacific Insular Areas and the Caribbean Insular Areas.

—From The ARRL Letter October 13, 1986

SPECIAL EVENT CALL SIGN

In celebration of United Nations Day, 4U1UN, the UN HQ station in New York City, used the special call sign 4U1UN. This one-day event was held on October 24, and 4U1UN counts as a separate DXCC country.

From The ARRL Letter October 13, 1986

VK3 WIA Notes



NEW MEMBERS

A warm welcome is extended to the following new members of the VK3 Division, as at September 26, 1986.

Polonia Amateur Radio Club, VK3CRP, N Campbell VK3OX, Hans Esler, C D H Longfield, John Meila VK3OD, Margaret Nally VK3QJ, John Nissen VK3YNN, Philip Pavay VK3BHN, School of Electronics Technology — RMIT, VK3COT, Keith Turner VK3CWT, Allan Bengtsson VK3PLI, and Ab Aziz Hassan VK3XNX

MORSE BEACON

A Morse code practice beacon, VK3RCW, is operating on 144.950 MHz and is located at Waverley in Melbourne's eastern suburbs.

It sends random groups of letters and figures at two speeds, 5 and 10 WPM. The 24-hour a day beacon should prove popular amongst those wanting to increase the code speed.



Magazine Review

Roy Hartkopf VK3AOH

34 Toolangi Road, Alphington, Vic. 3087

G General C Constructional P Practical without detailed constructional information T Theoretical N Novice J Computer Program

SHORT WAVE MAGAZINE, June 1986 — Simple Sideband Part 1 (P N).

RADIO COMMUNICATION, October 1986 — Measurements on VHF/UHF Front Ends (P N). Transmission Line as an Impedance Transformer (T).

HAM RADIO, July 1986 — VHF/UHF Special Issue (G). Strip-lines (G). UHF Low Noise VCO (P). Using the Multimeter (N).

Q-UTV No 135, August 1986 — TVRO Receiver (G). 1985 BAC Show (G). ATV Circuits and Ideas and General Information

WHAT'S NEW IN ELECTRONICS, August 1986 — Description of the Recent Developments in Components, Test Equipment, Integrated Circuits etc.

RADIO ELECTRONICS, May 1986 — Kirlian Photographs (G). Surface Mount Technology (G). Computer Digest Section included in the magazine.



QSP

RADIO NAVIGATION SYSTEM on 432 IN CANADA

CRRIL has become concerned about a new radio navigation system operating from the west end of Lake Ontario on or about 432 MHz. The frequency assignment appears to be legal. Amateurs use the 430-450 MHz band on a secondary basis. However, the assignment appears to have been made without due regard for potential interference. The wideband nature of the system's signals threatens weak signal terrestrial and EME communications near 435 MHz. Also, amateur signals could inadvertently interfere with the system, creating possible danger for ships that rely on it. CRRIL is pursuing the matter closely.

—From The ARRL Letter October 13, 1986



Forward Bias

Ken Ray VK1KEN
Box 710, Woden, ACT. 2806

After a long absence, a special bumper issue of *Forward Bias* in time for Christmas.

1987 SUBSCRIPTIONS

At the September meeting, the members of the Division voted to keep the VK1 component of the fees at the same level as the previous two years — \$8.50. Due to a steady increase in the number of members, and tight financial management, we are able to run against the general trend in the country and not increase charges.

WIA 75TH ANNIVERSARY MEDALLIONS

A little belated, but the following VK1 amateurs were awarded 75th Anniversary Medallions for their outstanding contribution to the advancement of amateur radio and the WIA.

VK1AOP Ted Pearce
VK1DS Peter Smith
VK1VP Eddie Penkile

VK1ZAH Dick Elliot
VK1TH Ted Howell
VK1DA Andrew Davis
VK1DG Dennis Gibson
VK1EP Eric Piraner
VK1GB George Brzostowski
VK1TR Ted Radcliffe
VK1UE Richard Jenkins
VK1OK Kevin Olds
VK1MX Bill Maxwell
VK1KAL Alan Hawes
VK1MM Fred Robertson-Mudie
VK1JR Ray Roche
VK1RH Ron Henderson
BRIAN TILMAN

Space precludes describing the many ways in which the above have served their fellow amateurs, but all have made significant contributions

to our hobby, and rightly deserve our congratulations.

PACKET RADIO

At the time of writing, the VK1 Division was in the process of establishing a packet digipeater. The digipeater will be located on a fire tower in the Kowen Forest, a few kilometres to the east of the centre of Canberra. While technical details are not yet confirmed, the digipeater should operate on 147.575 MHz, using the call sign VK1RPC. Output power will be 25 watts, and should give good coverage to Canberra and the surrounding area.

The digipeater is built around the TAPR TNC unit, and supports the AX.25 protocol. In the future, a more ambitious installation may be installed, supporting a number of protocols, and forming part of a major packet radio network.

VK2 Mini-Bulletin

Tim Mills VK2ZTM
VK2 MINI BULLETIN EDITOR
Box 1066, Parramatta, NSW 2150

Firstly, may I wish all members a Happy and Merry Christmas. The holiday time of the year is a break for most of us.

The last broadcast for 1986 will be on Sunday, December 21. The first for 1987 will be January 11. The Divisional Office will close for a similar period, the exact dates will be notified later.

About the time you receive this issue of AR, many of the readers, mostly those who have been a member for some time, will be receiving their annual renewal notice. (Those who joined recently are billed in the month they joined). There has had to be a rise in the annual subscription. The Federal Government has gone up by \$2.50 and the Division by 50 cents. This is the first rise this decade in the Divisional component. The full member subscription for 1987 is \$34.50, with associates \$32.50. This still makes the VK2 Division the second lowest fee structure.

A vacancy occurred on Divisional Council when Mary Jane Douglas VK2GJM, moved to the north-western part of the State. The position will be filled for the remainder of the Divisional Year by Arthur Outteridge VK2YV, who was the unsuccessful candidate in this year's election.

A reminder to the various office bearers and groups within the Division — the year for the Division ends on December 31. Any financial reports, etc must be submitted by this date. Reports from office bearers for the annual report should reach the President by mid-January.

There will be a huge response to the bookings for the annual dinner scheduled in October and the

event had to be postponed. May things have gone quiet in amateur radio? A check recently on the information sheets from affiliated clubs showed that out of 37 registered, 20 had not returned this year's information, despite having been sent two separate postings with the required forms during the year. Since then, a third form has been sent. One group had not responded to any posting since 1983! It is also noted that when a club has a change of office bearers, often there is no old paperwork handed on. The Divisional Office receives several calls from the new secretary of a group saying I have just taken on the job but I have no information, would the Division please send something out?

GOSFORD FIELD DAY

In Club Corner you will see information about the Central Coast Field Day, which is to be held on Sunday, February 22. This will be the 30th annual event on the Central Coast.

If you have an event coming up and wish publicity for it in AR, please give about three months warning by submitting copy. This will bring it to readers about a month before the event.

ROSS HULL VHF CONTEST

Can you support the event this year? If so, check the rules in November's AR and enter when you can. Most importantly — send in your log.

PUBLICATIONS

A reminder that there are stocks of the current Call Book and most publications available from

the Divisional Office. If your household is perplexed for a Christmas present for you, drop a hint that you would like a book. A list is available, upon request, from the Office. Telephone (02) 889 2417, Monday to Friday, 11 am to 2 pm or Wednesday 7-9 pm.

There will be limited copies of the International and USA Call Books and the 1987 APRIL Handbook arriving early in the new year. Cost is unknown until the shipment arrives.

Do you find it hard to catch up on the news? The Broadcast time-slots do not suit? You only hear about something days after it was on the Broadcast? And then the person telling you only half heard it or was told by someone else. Then maybe the answer is to check the recorded news summary available from Monday to Saturday on (02) 651 1489.

NEW MEMBERS

A welcome to the following new members for October.

J B Elsing Assoc, Bowral; J Hannema Assoc, Rose Bay; M J G Knorr Assoc, Unanderra; A M Love VK2ZF, Crows Nest; D R Moore VK2XAR, Leichhardt; S J Oldroyd VK2JSO, Concord; S J Rogers Assoc, Greystanes; G J Selwood Assoc, Orange; D J Stephen VK2PWF, Mullumbimby; P J Turner VK2ZNN, West Ryde; I G Wale VK2MAB, Bingle; D A Waugh VK2JW, Blacktown; D G G Longmore VK2MAI, Lidcombe.

VK4 WIA Notes

Bud Pounsett VK4QY
Box 638, GPO, Brisbane, Qld 4001

To all amateurs in Australia and their families, may we, the amateurs of Queensland, wish each one of you, a very Merry Christmas and a Safe, Peaceful and Prosperous New Year.

GYMPIE GOLDFEST 1986

Held on Saturday, October 11, this first Gympie Festival was a huge success. The organising committee of the Gympie Amateur Radio Club can be well pleased with the interest shown in this event.

Some 200 or so amateurs and friends visited the venue, the Chatsworth Hall, a few kilometres north of Gympie. It was a great day for meeting old friends, looking at the displays, listening to lectures and seeing some demonstrations of state-of-the-art packet radio or taking part in fox hunts.

Amateurs came from far and wide and a quorum of Divisional Councillors were there. David Jerome VK4YAN the Queensland Div-

isional President, was introduced to the gathering by Alan Gardner VK4BWG, to officially open this first Gympie Goldfest, but certainly not the last.

CENTRAL QUEENSLAND SIX METRE REPEATER

The planning for this repeater took a step further when the Queensland Council approved a recommendation from QTAC that a six metre repeater application be established in the Rockhampton — Gladstone area. The application was submitted by the Gladstone Amateur Radio Club, who were commended for their excellent presentation.

Now, all that remains is all the hard work involved in getting this repeater on the air. Rockhampton and Gladstone amateurs are co-operating in this project. Progress reports will be made as time goes by.

VISITING NORTH QUEENSLAND IN 1987?
If you are planning a trip into tropical Queensland in the new year, think about making it towards the end of September.

Why? That is when the North Queensland Convention will be held under the auspices of the Townsville Amateur Radio Club. It is held every two years and visitors are made very welcome. If you have not tried North Queensland hospitality, you haven't lived!

—Bud VK4QY

QUEENSLAND NETS

The North Queensland News Broadcast Net is held on Sunday nights at 8 pm on 3.605 MHz. Operator is Evelyn VK4EQ using the Club Call Sign, VK4WIT.

—Contributed by Jeanette Mann, Secretary, Townsville Amateur Radio Club

Five-Eighth Wave

Jennifer Warrington VKSANW
59 Albert Street, Clarence Gardens, SA 5039

I was pleased to receive a letter from Graham VK7ZO, recently regarding my paragraph in October's AR about a home-brewing frequency on 3.579 MHz. Graham says he has recently built the Drew Diamond VK3XU FE4 Tx four watts VFO, and has obtained crystals for that frequency. At the time of writing to me, Graham had only had one contact, and that was with Bob Tester VK5MV, one of our well-known Slow-Morse Panel members, from Mount Gambler.

Dere I say, Graham, that maybe one reason for the lack of contacts was the fact that you have been sending CW at 20 WPM! The group who first promoted the Home-Brew Frequency-Ides were the Port Lincoln ARC, who at the time were tutoring groups of school children from Port Lincoln High School and St Joseph's College. These children were building their home-brew QRP rigs as part of the project, and although they were learning CW, I imagine most of them were only up to five words-per-minute for the Novice Licence. I know that their teachers in CW, Jack VK5AJK and John VK5AEP (both Slow-Morse Panel members) handle that speed, but perhaps some of the students would be encouraged to answer something a little slower.

Anyway Graham, don't give up trying just yet, and perhaps those of you with higher power and commercial rigs could leave the frequency free it possible to give our home-brewers a spot to find each other. Your reward may not be in Heaven, but it will certainly be in encouragement. Experimenters and home-brewers, many of them young — a breed we are often told, that is dying out with the introduction of "Black Boxes."

Speaking of young experimenters, we gained some excellent PR on Channel 7's *State Affair* thanks to a segment that they did on Grant Willis VK2ZWI. In fact, Grant is the youngest AT'er in VKS, and possibly Australia, a very talented young man who looks like having a big future in electronics. We have already had the benefit of his experience when he helped John VK5EV, to set-up the ATV display at Marion Library. Congratulations Grant and thank you once again for that excellent piece of PR.

Kelth Ring VK5KH, at Kapunda, recently donated a Pledge ring to the WIA for use on 40 metres for the Sunday Morning Broadcasts, in AM. The main problem seemed to be finding somewhere to house it for the time being, as none of the current operators needed it immediately. Our thanks go to Ross Dow VK5KF, for finding it a "house-room" and to Marlene and Brian Austin VK5QO and VK5KA, respectively, who received the "hermits" transporting it. And, needless to say, many thanks to Kelth for the donation.

As this will be the last issue for the year, I can't help looking back and marvelling at all the things that have been accomplished in this, our Jubilee Year. In fact, of course, it was more like 18 months, as we kicked-off our activities in the Renaissance Centre with a week-long "launch" in May of last year. Since then, VKSJA has been heard rail-mobile across the Nullabor, from the Cape Willoughby Lighthouse and the *Phindora* maritime mobile — also maritime mobile in the *Twin Gull Yachting Regatta* and from on board the *Falco*, and the *Paddle Steamer Industry*.

The *Trade Train* was a major activity which involved amateurs from all over the State and there were activities which were as wide spread and diverse as the opening of the *Horse Drawn Train* at Victor Harbour, and the viewing of *Halley's Comet* at Stockport. There were so many other activities which took place, and some that we planned which, unfortunately, did not come to fruition.

The one name that comes to mind when we talk of Jubilee 150 is Graham Horlin-Smith VK5AQZ, and we could not let the year end without thanking Graham for all the work that he has put into the role of Co-ordinator. Without his foresight and drive, many of our activities would never have got off the "drawing-board" but let us not forget the

many others who have shared some of the glory (and sometimes some of the blame), but without whom even Graham's ideas could not have happened. It is probably unfair to name some and not others, but three names do stand out from the crowd.

Rowland VK5OU, who has been responsible for organising and sending out the J150 Awards; John VK5SA, who set up special nets and spent hours on air giving out VK5 contacts (not to mention the *Marion Centenary Activities*); and Peter Koen who thought up a new slogan and painted signs for most of the major activities. To these and to all the hundreds more up and down the State — the VK5 Division says thanks.

... BUT WAIT!!

It isn't over yet. On December 28, 1986 (the actual day that we become 150 years old) Ken Western VK5AGW, and a group of Glenelg-based amateurs will be using the VK5JSA call sign, possibly for the last time, at the Old Gum Tree, Glenelg — the place where South Australia was first proclaimed a State by Governor Hindmarsh.

Do look out for Ken and Company, and do not miss out on what may be your last chance to work this very special call sign.

I would like to take this opportunity to wish all a very happy Christmas and a year of good propagation and low noise levels!

DIARY DATES

DECEMBER

9 Christmas Meeting at 8 pm. *Looking Back at Radio in SA* — an Audio History produced and presented by John Hampel VK5SJ and Gordon Welsh VK5KGS, with the help of Kevin Kitto and the Glen Les Singers — Woodville Community Hall, 84C Woodville Road, Woodville (between Port Road and the Railway Line, on the right-hand side, before the Council Offices).

Bring your partner and also a plate of food. The WIA will provide chicken and salad platters, sausage rolls, pie and pasties, all drinks, etc. Interstate and country members welcome.

JANUARY

27 Traditionally a *Buy and Sell* night. Please note it is a fourth Tuesday, so excuse the QSL Bureau, Books and a short Business Meeting preceding the "Entertainment".

JSA AWARD WINNERS continued

628	W7DU	706	K4FSJ
629	VK2JWE	708	K1GZP
631	VK2AKU	707	KFSGA
632	ZL2BDF	708	KABMRF
633	ZL2BEX	709	K4JKB
636	VK5IV	710	N2G0I
637	WB5MNV	711	N8QKR
639	VK3AJU	712	W5WUW
640	VK5ZPW	713	W6PUP
643	VK5QDO	714	W5USH
645	VK6XVM	716	K8LBF
646	VK6NCM	718	N3ESB
647	VK5RKR	717	K8BFC
653	WFGA	718	K4ABO
654	WF KJB	718	K0BZ
659	TK5JUT	720	N2DLG
660	VB5WPF	721	J43XHA
661	IL3EOP	722	N6LHF
662	JG3OCW	723	KABUVO
663	W4RZN	724	W6SWV
664	K4GOCG	725	VZCZDT
665	WB5OHJ	726	VK5ITX
666	K4SDBN	728	K5HUT
667	KB2ON	729	WB2SKQ
668	K4ZUFA	730	W2EKQ4
669	VE3HWWS	731	W3MSE
670	W4WQ	732	K4TVG
671	NL7AT	733	K4BNY
672	K4GIV	734	K4SZA
673	VK5XAU	735	NSGYT
674	NL5L	736	K4QSR
675	NBEOK	737	K0DSC

676	WA7GGA	738	N5EY73
677	WB8M	739	KABMNS
678	K41WZ	740	K1CLN
679	K4B3C	741	N4MAD
680	V44KQ3	742	W2BIE
681	K47YQ	743	W4CWC
682	K43LHP	744	WN6J
683	N4HXK	745	N4BN
684	K47MUL	746	K4DUWN
685	WB5URR	747	NM5N
686	K8BJUJ	748	NSJCS
687	K5ABD	749	G4MTCW
688	W5Smith	750	B8S7801
689	K8BCGP	751	K4IEZR
690	A44HX	752	K02HO
691	K4BYAC	753	K4JVO
692	K4ADME	754	W4BECMM
693	K8BAHA	755	G4VOE
694	NH8FUKHP	756	J43BOA
695	N0QILQ	757	J2ZXK
696	W4DCSS	758	VK5KAK
697	K4SZIT	759	K47BKE
698	K4SPIT	760	V7EWF
699	K43NCJ	761	G3NOF
700	N6ZFZ	762	W4DKCW
701	K4GGGO	763	94YRJ
702	WB5HPR	764	H8JVO
703	K0SWR	765	D2R8K
704	WB5ZOP	766	JH1RQJ

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- 2 First Brunel
- 3 First St Kitts
- 4 Canadian SWL
- 5 First England
- 6 First Wake Island
- 7 First Switzerland
- 8 First Germany

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Over to You!

Any opinion expressed under this heading is the individual opinion of the writer and does not necessarily coincide with that of the publisher.

HAMADE

I can attest to the "pulling" power of Hamade, inasmuch that I received the first reply to my advertisement in September's magazine, on September 5. The chap asked for 46 hours to consider but I told him that it was first come, first served. Anyway, next day another customer.

The first person came within 24 hours, discussed the equipment, and wrapped some cash my way! From then on an irregular series of others were in contact the last on September 25.

In view of this success I will use Hamade again (this month in fact)!

I was most impressed with the October issue of Amateur Radio and would like to congratulate all concerned with the edition and the many who contributed articles.

Yours faithfully,

R Easterbrook VK3RML,
c/- Eliza Lodge,
347 Nepean Highway,
Frankston, Vic. 3199.

TRAFFIC SYSTEM

The Mexico, now El Salvador earthquakes have highlighted these ideas.

I would suggest some close liaison in the USA between the Pacific Area Net (PAN) and Eastern Area Net (EAN), so that the National Traffic System (NTS) can respond to changing propagation from week to week. During the Mexico and El Salvador earthquakes, propagation changes seriously affected Austral's link to these areas via the two international traffic nets — International Assistance and Traffic Net (IATN), which feeds EAN and Australian-American Traffic Net (AATN) which feeds PAN.

This would develop an International Emergency Communication preparedness arm within the NTS.

Such an international co-ordinator/s based in the USA could:

1. Send directives needed to re-route international traffic through NTS in accordance to the propagation feedback received from the EAN and PAN international arms. Comment: it would be nice if propagation were constant to Australia. This idea attempts a solution to the problem of long international links.
 2. Use the expertise developed on the international traffic nets normally feeding EAN and PAN by sending a directive that they establish links to any part of the world affected by a disaster.
 3. When any disaster occurs world-wide, to contact the US administration and foreign consulate to seek immediate verbal authority to handle Third Party Traffic to that country.
 4. To expand during any disaster anywhere, the normal international schedules with Australia who depend almost totally on relaying their disaster welfare traffic via stations in the USA (600 messages to Mexico and 200 to El Salvador). This includes activating standby emergency schedule 0800 UTC, 7226 MHz ± QRM especially set up when contact is lost on 14 MHz to the USA.
 5. To send a directive to Australia, that traffic capabilities to a specific disaster area, not normally covered by the 40 USA Third Party Agreements, exist so that amateurs in Australia can let the public know that amateur radio has a capability to handle their welfare inquiries.
- Comment: Australian amateurs can pass traffic to any country the USA has an

agreement with, provided we do it via a US or Canadian station. We now also have an agreement with Israel: is currently we only have three direct traffic agreements. Yours faithfully,

Sam Voron VK2ZSV,
Co-ordinator ATN,
2 Griffith Avenue,
Roseville, NSW 2069.

COUPLE OF THINGS WRONG

The April issue of Amateur Radio with its striking cover just came into my possession, or I would have commented earlier.

On page 31 is the following note:

The ARRL has refused an FCC proposal that would turn the 52-54 MHz portion of the six metre band over to non-smelter computer enthusiasts who would use it for data exchange.

There are a couple of things wrong with this. First of all, this is not an "FCC proposal". It is simply a petition for rule-making, originating from outside the Commission, on which the FCC has taken no position at all. In accordance with the Administrative Procedure Act, the US legislation which among other things guarantees the right of public participation in the rule-making proceedings of executive agencies, the FCC has simply established a file number for the proposal and made it known that the public may comment on it.

ARRL has done so, and of course our comments oppose the proposal. With any luck, the Commission will simply deny the petition and terminate the proceeding since there are serious technical flaws in it. Should the Commission wish to seek further comment it may do so either by issuing a Notice of Inquiry, or by going one step further and issuing a Notice of Proposed Rule-making in which specific new rules would be proposed. It is only the last option which could correctly be characterised as an "FCC proposal". In the case of either an NOI or an NPRM, there would be an additional opportunity for opposing comment by ARRL and others.

The second problem that I have with the brief item is that it conveys that ARRL has the power to "refuse" proposals which impact the amateur service. I wish this were true! The fact is that, while ARRL has considerable influence with FCC, the Commission is under no obligation to follow our desires. This is one reason why we are so anxious that amateur radio speak with one voice to the FCC — that of the League — just as you would wish the representative voice of Australian amateurs with the Department of Communications to be the WIA.

I completely understand the difficulty any editor faces in condensing a complex issue into a few words, and hope these comments will be accepted in the constructive spirit in which they are intended.

73,
Sincerely,

David Sumner K1ZZ,
Executive Vice-President,
The American Radio Relay League, Inc.,
Westborough,
Connecticut, USA.

DE-SEXING ENGLISH

In reference to the Editor's Comment, October AR and the use of "draftsperson" instead of "draftsman" or "drafter".

The present cumbersome attempt to de-sex English is hilarious!

Consider using "Chairperson" and "Spokesperson" for chairman and spokesman when all authoritative dictionaries define both these latter words as a "person who etc."

Such stupidity makes "woperson" of women and "heperson" of female!

But why "person"? — "per" (by means of) and "son" (equally male as "man").

With Leader, Stenographer, Laborer, etc as precedents, was it too logical, simple and consistent for the woperson de-sexers to use "Chairer" and "Speaker" for?

Errol Chik VK3GG,
18 Vida Street,
Essendon, Vic. 3040.

TELEVISION

I was pleased to read the correction in the Editorial, and the information from Wireless World, 1936, via VK3ZXU, given in the October edition of Amateur Radio concerning the inauguration of regular experimental television transmissions from Alexandra Palace, in November 1936.

I would like give further information showing that this was not the beginning of the transmissions from Alexandra Palace.

In 1935, I was a school-boy at a boarding school in Hertfordshire, gleefully absorbing wireless information from the magazine Hobbies. Another boy (H O D Thwaites) and I built three valve radios and later shortwave adaptors to plug into the detector valve sockets so that we could become shortwave listeners on the amateur bands. In the same year we formed a wireless club and built a 32 definition crude scanning disc television receiver. I wrote to Alexandra Palace to say that I had observed a face through the magnifying glass — the image coming through the spiral of 32 holes in the synchronous motor driven scanning disc from the photo-electric cell behind.

A nice letter came back saying that if the headmaster gave his approval, we could become a Baird Television Monitoring Station. This approval was given, and along came a beautifully made 32 definition Baird Mirror Drum television receiver, which we used to send a monthly log to Alexandra Palace.

In 1937 or 1938, after I left school, I remember watching programs on an all-electronic 405 definition Marconi-EMI receiver at the home of an engineer friend of my father. All transmission stopped, of course, at the beginning of World War II.

One last item of note — after being a SWL and electricity supply engineer for most of my life, I nobly failed the novice theory examination in 1981, but passed in 1982. There must be a message in that!

73,

Geoff Wallace VK4VLI,
8 Orana Street,
Victoria Point, Qld. 4163.

BEYOND FROM THE CROWD

Please hear a cry from one of the crowd of frustrated home-brewers in VK-land.

New black-box equipment prices are said to have nearly doubled in the last 12 or so months. Even quite simple pieces of amateur radio equipment are offered at prices which, on consideration, seem high. Home-brewing is said to be the answer!

The amateur radio candidate and novice is often told about the joys of home-brewing, but unless they already have the parts, or can find them at the local electronics store, they are facing considerable difficulty. The older old-timers may have a stock of salvaged parts in the junk-box, but I would say that the novice usually has not.

Sometimes ago I took it into my head to build a transmatch type ATU and to re-build a power supply for a hybrid rig which I had obtained in good order. Much effort went into getting enough high voltage capacitors for the filters, and as for bleed resistors of sufficient power ratings — what a laugh! The hunt for a filter choke was eventually successful. The rig, now being operational, at least as far as receiving goes, the transmatch is next.

In fact, the search for transmitting variables began nearly 12 months ago. Seeing advertisements for them in AR and other places, I telephoned, only to be told that they had been sold, even prior to my copy arriving in the mail.

On a recent visit to Brisbane, I telephoned all the likely, and some unlikely, suppliers in the Yellow Pages. Quite a number of them did not even know what I was talking about. Most of those that did know said, "There's no call for them," — but there must be a demand if the few second-hand ones on the market get snapped-up almost before being advertised.

Perhaps the frustrated home-brewers have become sick of being told; "There's no call for them," and have stopped asking for transmitting variables: roller inductors, ceramic wiper switches, power resistors, high inductance filter inductors and so forth.

Or perhaps the profit margins on them are not so great?

Now I can hear a few saying, "Why don't you build it yourself?" Few of us have the facilities or skill to build variable capacitors, but we can assemble them into working devices.

A recent Prime Minister said, "Life wasn't meant to be easy." Someone else said that it wasn't meant to be impossible either. So come on all you frustrated home-brewers, put a little pressure on your favourite electronics store for the parts you require, but can't obtain from the retailers. Some of these things will sell quickly. Come on magazine editors, what about a Where to get it! section for homebrewers. It is no good publishing home-brew articles if readers cannot obtain the necessary parts.

Yours faithfully,

Ken England VK4JPE,
51 Morgan Street,
Rockhampton, Qld. 4700.

REVIVE THE PAST TO BEAT RISING COSTS

The prospect of continuing price increases for black boxes has been clearly indicated in the statements by major resellers in the October issue of AR.

The situation has developed into a sort of "abandon hope all ye who enter the ranks of amateur radio" syndrome. And we in Australia, having to face up to the politically declared "Banana Republic" image see little prospect of an immediate improvement.

So we must seek a strategy which will, for the time being at least, return the interest of existing amateurs and appeal to prospective enthusiasts.

My embryo proposal has been discussed with a number of amateurs, both VK and DX, and has met with approval and encouragement. Perhaps many will regard it a backward step and condemn the thought as contrary to the advancement of the art.

My proposal is to set aside a portion of certain bands, say 2, 6, 10, 15 and 80 metres, for the use of low powered, low cost home-brew equipment. The band portions could even be part of the novice spectrum already allocated.

The scheme would enable fledglings to make their first flutter with home-brew gear on both AM and DSB. The components could readily be gleaned from discarded black and white television sets. Likewise, it would provide the old timer with the means to fire-up his nostalgia and revive a lot of memorabilia.

I, for one, will be an enthusiastic participant.

Sincerely,

Geoff Wray VK2BR,
53 Turt Street,
Grafton, NSW. 2460.

COCOS-KEELING

I am more than a little disappointed in the How's DX? editor's treatment of the article on Cocos-Keeling Islands in the October AR.

The story is full of holes, omissions and in fact does little to enlighten the reader about this amazing coral island. Further, the editor hardly touches on the main reasons for any DXer to be interested in the location, which would be, put

simply, to make contact with it on his favourite band.

For some time now, I have held the belief that there is severe criticism and discrimination against those amateurs, who by their individuality and different pursuit, dare to set themselves apart from the so-called norms of amateur radio.

If you behave or do things in a different way, then you can expect to be ostracised by the mainstream. In this case, that mainstream would appear to be represented by the WIA and in particular, those in the "know" about DX and such things.

Further, if you do things in the accepted way then you are also accepted as a friend of the WIA or its DX chasers.

The Editor's "obvious" omissions in his story on Cocos are lamely excused by the statement "however it is impossible to list all operations from this area."

His weak attempt gives credit to the "accepted" operations and credits the reduction of Cocos on the world map "most wanted list" to the operations of only three stations.

The itinerant nature of the RAAF visits to Cocos and the nature of VK9NYG's operation, confined to the Novice bands, did little to reduce Cocos on the world wide list. Anyone who consults the lists from that era will confirm this argument. The only significant reduction in the world list on Cocos Islands occurred after the VK9VY/VK9VS operation in 1979 and VK9VYMYT in 1982; totals for both operations, 50,000 MYT.

The message to non-conformists is loud and clear, between the lines. Fortunately, maybe only 12,000 people read the column and over four times that worked the island by way of a non-accepted DXpedition, just as they did when they worked Heard Island, but that's another story, just like the six metre operations from VK9Y and VK9X which netted 20,000 contacts and 25 countries. Try and find that in any WIA journal.

Steve Gregory VK307RYT,
PO Box 622,
Hamilton, Vic. 3300.

SETTING THE RECORD STRAIGHT

My attention has been drawn to an article in a United States magazine which stated that, following the opening of the 12 metre band for American use, the first DX contact was some 20 minutes or so later.

I would like to set the record straight, at least in our own magazine, by advising that the band was opened on June 22, 1985 at 0000 UTC and I was immediately in QSO with N5JFG, Los Angeles, and subsequently with other stations. We set up a calling channel on 24 950 MHz and this system remains in use Brian K6STI, formerly of San Francisco, but now at Manhattan Beach, CA, maintains a regular listening watch, either side of 0000 UTC and I do the same at this end.

There are good openings and we have found that if the 15 metre band is anywhere near operational, then there is a good chance on 12 metres. It would be nice to have more participation by VKs on this WARC band.

Very 73,

Joe Ellis VK4AGL,
Burnside Road,
Nambour, Qld. 4560.

OPERATION RALEIGH 1984-1986

An opportunity has arisen for amateurs to become associated with Operation Raleigh by offering assistance as may be required to the flagship Sir Walter Raleigh as she visits the various Australian ports. Proposed dates are — Brisbane November 28 to December 7, Sydney December 9 to 12; Melbourne December 15 to 20; and Fremantle January 3 1987.

The vessel is an ex-Hull Trailer of 1900 tonnes and has been converted for use as a support vessel for various phases of Operation Raleigh. The ship's Radio Officer, David Legge, is also a radio amateur (G3SYF), and has been allocated the call sign VK4SWP/MM and will use this call sign on the Australian coast. The call sign G8SWRP/MM is used when the vessel is at sea.

An additional radio amateur is normally welcomed on board as there is a requirement for a skilful, experienced man to undertake the servicing of any of the radio equipment used in the field, either on vehicles or boats, as required.

The amateur on board has the use of a FF-57 and the unique opportunity of being able to make many DX contacts from Sir Walter Raleigh, to other amateur world-wide. It would be much appreciated if representatives from local radio clubs would visit the vessel whilst she is in their vicinity, to offer any assistance with technical service and/or the amateur communications. Any further information may be readily available per telephone (02) 477 6276 or from the undersigned.

Al Davis-Rice VK2AXR,
394 Pacific Highway Motel,
Hornaby, NSW. 2077.

RECENT MOOTING

I write this letter somewhat hesitantly, I have been an amateur for six years and prior to that I spent several years as a professional operator. In that time I have not perceived, until recently, a threat to the enjoyment of my hobby that I deemed serious enough to cause me to put pen to paper.

The threat to which I refer is the recent mooring by some, to have a further class of licence introduced, the emphasis of which would be on the technical side rather than operating ability; ie Technician Class, and it is my opinion that, if these moves were to succeed, it would be to the detriment of all except the few, who I have noticed, with professional links with the electronics industry and would therefore slot neatly into this class without further effort, particularly in the area of CW.

These persons would have us believe that the average operator would lose nothing through the introduction of this licence, I say rubbish. At present, and after years of study, I have, in my opinion, reached the zenith of amateur radio by having obtained an 'unlimited licence' and the only way I can see of introducing a further class of licence, with the privileges that go with it, is at the expense of others such as myself.

At the very least, I envisage a loss of a portion of the spectrum to these 'up market limited operators'. This type of licence will not open any further entry points into the hobby as the limited licence caters quite adequately for those having difficulty with CW and can only serve to create further divisions.

I would object to losing a portion of the HF band to under qualified operators. If their interest lies purely in the technical aspects of radio and not in sharpening their operating skills, it would be advantageous to both them and the rest of the hobby if they operated QRP into a dummy load. It would save power for them and spectrum space for the rest of us.

I am all true operators to reject these proposals — outright.

Yours sincerely,

Ross Cummine VK3CFJ,
39 Hague Street,
Rutherford, NSW. 2320.

1986 — 1987



CALL BOOK

Have you noticed any errors or omissions in the 1986/87 Call Book?

Please advise the WIA of any corrections as work has commenced on the 1987/88 edition.

Write to: PO Box 300, Caulfield South, Vic. 3161.

Please enclose information as in Call Book and convenient information!

Silent Keys

It is with deep regret we record the passing of —

MR P C ALDRED
MR D E GARDNER
MR C J MARTINSON
MR JACK T. FLETCHER

VK4CA
VK3ABE
VK3BJ
VK3YSG
VK2AJQ

Obituaries

STEWART D P SMITH VK4LA

Old-timer Stewart Smith VK4LA, became a Silent Key suddenly in the late evening of May 20, 1985. His passing leaves a noticeable gap among the many amateur operators who were proud to have called him their friend.

Stewart became a licensed operator on June 1, 1934, at which time he was a member of the Technical Staff of Radio Station ABC, in Brisbane. He remained with the station until August 1941 when he joined the RAAF. He later saw service in the United Kingdom, as a Wireless Navigator in 456 Squadron, RAAF and was mentioned in Despatches.

After the cessation of hostilities Stewart returned to Australia and soon after was appointed in charge of the Technical Section of the Visual Education Branch, in the Queensland Department of Education. He remained with the Department until his retirement in 1978.

He was a true "Foundation Member" of *Jamboree on the Air* in Australia, taking part in many operations. He was active in 1955 and continued his association with every one of these events, as late as 1985. He was instrumental in arranging for the procuring of the first licence for a Scout or Guide Headquarters Amateur Radio Station in this country, when in 1964 he assisted the Queensland Scout and Guide Council to obtain its licence and call sign — VK4QH (now VK4SAA). He was the nominated Station Manager until he retired for health reasons a few years ago and for his services to the Association was awarded the gold "For Services Rendered" Badge, an award he wore with pride.

Even after his retirement as Station Manager, Stewart continued to maintain a keen interest in this station.

Stewart's final contribution to Radio Scouting and Guiding was in January 1985, when he offered his services, and was accepted, as Station Manager for the International Guide Camp Broodcade station, operating out of their camp at Greenbank, in Queensland with the call letters 4NKN.

Stewart made many friends in Scouting and Guiding circles at all levels from Chief Commissioners, down to the boy and girl level, because of his friendliness and ever ready willingness to explain amateur radio fundamentals to keen Scouts and Guides. He was sadly missed in this year's JOTA.

He is survived by his wife, Brenda, daughter Jillian, son-in-law Lester, and devoted grandchildren, Kate and Stephen. He is sadly missed by them, as well as his friends in the amateur radio movement, Scouting and Guiding, all of whom valued his friendship so highly.

—Contributed by Noel Lynch VK4BHL and Jack Griffin VK4JG

JOHN B RYAN VK3AZA

It is with regret that I announce the death of John at the Caritas Christi Nursing Home, Melbourne, on October 3, 1988. John, aged

71 years, had spent most of the last 12 months in various hospitals receiving attention.

In the 1930s, John joined the State Electricity Commission of Victoria Electrical Laboratory, Yarraville. With the outbreak of World War II he joined the RAAF and, as a member of Aircrew, carried out many missions as a navigator.

With the cessation of hostilities, John returned to the SEC and, until his retirement, was actively engaged, as Design Engineer, in protection and stability studies associated with the system operation.

In the 1970s, John took out an amateur radio licence, thus making many overseas and Australian friends. John also gave a considerable amount of time as a volunteer worker in the running of the WIA Victorian Divisional Office.

John is survived by two sons, Daniel and Mark, and a daughter, Julie, who resides in California, USA.

On behalf of his amateur friends and myself, I wish to offer thanks for his friendship.

Reg Busch VK3LS

MAURICE (MAURIE) PFEFFER VK4IANU

The untimely death of Maurice on September 30, 1988 robbed the Darling Downs Radio Club of one of its most enthusiastic members.

At the time of life when most hardworking and successful persons are considering retirement, Maurice turned his attention to amateur radio in 1980, and quickly progressed to his full call.

His dedication to the hobby was shown by his faithful attendance at executive and club meetings. This necessitated a round trip of 200 km from his agricultural property, sometimes twice a month.

He served his fellow amateurs with regular participation in many club nets and as net controller his big signal was heard far and wide.

In common with all other discerning operators, he devoted many hours to home-brew antennas and his many friends followed, with great interest, his persistent attempts to defy the law of gravity and keep his giant three-band quid airborne.

Two more of his many talents were directed towards the Brass Band and he was a foundation member of the Pistol Club. Despite extensive chemotherapy and radium treatment, his health continued to improve.

A very close family man, Maurice will be sadly missed by his wife Melba, his children and their families, and his many, many friends, including the members of the VK Disabled Persons Radio Club (VK4BTPB).

Maurie's attitude towards this Club was one of interest, companionship and concern. His able support could always be relied upon during Club activities and he rarely missed the weekly net on 80 metres.



Maurie and Melba.

Even in times of severe illness, his cheery manner always brightened the day. He will be sorely missed.

Deepest sympathy is extended to Melba and family.

—Contributed by Eric Waseenan VK4ADA and Roley Morgaard VK4AOR, on behalf of the Darling Downs and the VKA Disabled Persons Radio Club.

BILL DOUGLAS VK3GA

Bill was a veteran of both World War I and World War II.

Enlisting for the first conflict at the age of 17 (having relinquished his position as a Junior Teacher at Mount Macedon), Bill was drafted into the 4th Division AIF, and left Australia as a member of the 8th General Service Reinforcement. In England, he was transferred to the Artillery, and on arrival at La Havre, France, was ordered to join the 11th Howitzer Battery. He served with this unit for the remainder of the war, and action took him to Northern France, including a spell in one of the most hard-fought campaigns around Villers Bretonneux. He gained the rank of Artillery Sergeant. At the close of hostilities, he remained for a time as a member of the Australian Graves Detachment.

After three years service, Bill returned to civilian life and took up a university course, gaining his degree of Bachelor of Laws. He entered the teaching service and was appointed to various country schools, including Lavers Hill, where, in January 1929, he was licensed as VK3GA. On April 18, running 2.1 watts input from a dry battery, he made his first amateur radio contact, with VK6PP Captain Payne, Patron of WIA. This was the first of some 18,000 contacts which Bill was to make in the following years. His QSL card, of novel design at that time, depicted the now familiar boomerang with the words, "Come back to you."

Lavers Hill was the scene of some unique public service. The first cricket season of intense interest in those days, and with the co-operation of the local postmistress, who was also the telephone operator, Bill relayed the cricket broadcasts direct from England to all subscribers in the district. Nothing could have made him more popular.

By 1934, Bill had gained a second university degree — Bachelor of Arts. War clouds loomed again. In 1940, after enlisting in the AIF, he transferred to the RAAF, becoming an Education Officer. 1943 saw him in New Guinea with 8 Operational Group, with service at Milne Bay, New Britain and Aru.

Discharged in August 1945, he resumed teaching and became involved in the Victorian State Schools Sport Association. Amateur radio was re-activated. Bill's call was regularly heard on CW, and DX was the main interest.

An intensely active person, Bill was not only a keen gardener, amateur carpenter and decorator, but also an enthusiastic sportsman, his proficiency at tennis even when in his late 60s earning him considerable acclaim. Amateur radio claimed his quieter moments. Bill's shack, with its tiered display of cards was colorful, effective and impressive. Countries confirmed could be proved in a second. There were 286 of them.

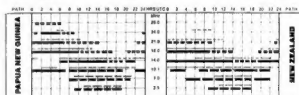
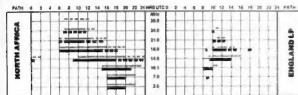
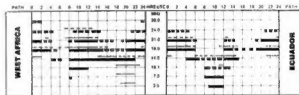
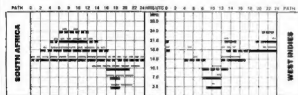
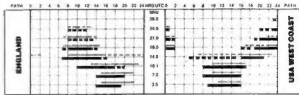
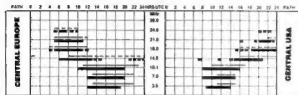
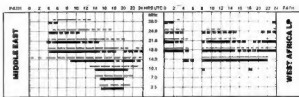
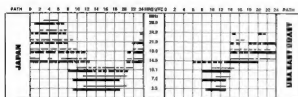
This year a tower and four element beam had gone up behind the garden. Bill, now one of the oldest active VK amateurs, had hoped to extend his DX tally. Unfortunately, illness beset this modest veteran and he passed away on September 8, in his 87th year.

To his wife Lorna, his daughter and four sons, amateurs who remember Bill extend their kindest thoughts.

Ivor and Marie Stafford VK3XB and VK3KS

Ionospheric Predictions

Len Poynter VK3BYE
14 Esther Court, Fawkner, Vic. 3060



LEGEND
From Western Australia (Perth)
From Eastern Australia (Canberra)

Mixed mode dependent on angle of radiation (long broken lines)



Better than 50% of the month, but not every day (continuous lines)

All paths unless otherwise indicated; (L) LP = Long Path or Short Path



Less than 50% of the month (short broken lines)

Predictions are presented courtesy of the Department of Science, IPS Radio and Space Services, Sydney.

Solar Geophysical Summary

AUGUST

Solar activity continued to be low in August with no energetic solar flares observed.

A number of small regions were visible on the solar disc during the periods 01-09, 12, and 19-31. The small size of these regions is reflected by the daily 10 cm flux values for the month, peaking at 71 on the first with a low of 66 on 13th.

The regions observed were mostly 'reverse polarity' and the increasing presence of these regions indicates that the start of the new solar cycle is not too far away.

The 10 cm readings for the month were: 1=71, 2=70, 3=71, 4=70, 5=69, 6=112=67, 13=66, 14=67, 15=68, 17=68, 19=68, 20=62=69, 23=64=68, 25=66=69, 27=31=68. Average was 68.65. Sunspot average was 7.4.

The running yearly average was 13.2 at February 1986.

GEOMAGNETIC

August was the most disturbed month since

February 1986. There were three periods of disturbed conditions, the longest being 20-25th.

August 3-4

The field became disturbed early of 3rd and remained disturbed until the middle of the 4th. A=19,22.

August 20-25

The field became disturbed after 1500 UTC on 20th and remained that way until mid-25th. The most disturbed period was between 0300-0900 UTC on 22nd. A=16,27,24,26,19,19.

August 27

The field was disturbed between 0800-1400 UTC. A=18.

August 28-31

The field was disturbed from 1200 on 28th until 0600 UTC on 31st. The most disturbed period was 1800-2100 UTC on 30th. A=20,23,18.

—From data supplied by the Department of Science IPS Radio and Space Services, August 1986.

DEADLINE



All copy for inclusion in the February 1987 issue of Amateur Radio, including regular columns and Hamads, must arrive at PO Box 300, Caulfield South, Vic. 3162, at the latest, by 9am, January 2, 1987.

Hamads

PLEASE NOTE: If you are advertising items FOR SALE and WANTED please write each on a separate sheet of paper, and include all details: eg Name, Address, Telephone Number, on both sheets. Please write copy for your Hamad as clearly as possible. Please do not use scraps of paper.

* Please remember your STD code with telephone numbers
 * Eight lines free to all WIA members. \$0.00 per 10 words minus for non-members
 * Copy in typewriter or block letters - double-spaced to Box 306, Caulfield South, Vic. 3182
 * Reprints may be charged at full rate
 * QTHR means address is correct as set out in the WIA contact card book
 Ordinary Hamads submitted from members who are deemed to be in the general electronics retail and wholesale distributive trades should be certified as referring only to private articles not being re-sold for merchandising purposes.
 Conditions for commercial advertising are as follows:
 \$22.50 for four lines, plus \$2.00 per line (or part thereof)
 Minimum charge - \$22.50 pre-payable
 Copy is required by the Deadline as indicated below the indexes on page 1 of each issue.

TRADE ADS

AMIRON FERROMAGNETIC CORES: Large range for all receiver and transmitting applications. For data and price list send 10c 22mm SAGE to: RJ & US IMPORTS, Box 157, Mortdale, NSW. 2223. (No inquiries at office) - 11 Macklin Street, Oakley. Agencies at: Geoff Wood Electronics, Lane Cove, NSW. Webb Electronics, Albany, NSW. Truscott Electronics, Croydon, Vic. Willis Trading Co, Perth, WA. Electronic Components, Fishwick, TAS. ACT.

NEW 80 METRE CRYSTALS: Frequency 3.530 MHz to 50 ppm, range 100 to +50 degrees C, stability 50 Hz, 818 pin crystal including post. Mail orders to: **ELECTRONIC APPLICATIONS**, 6 Binnari Road, Hornsby Heights, NSW. 2077.

WANTED - NSW

COPIES ELECTRONICS AUSTRALIA: 1991 onwards. Cash adjustment. Reply VK2DS QTHR.

OLD SLAVE CLOCKS: of the type that were driven off master clocks in the head office of factories & govt buildings of yesterday. Slave units were stepped on by a pulse every 30 secs. Ray VK2FW. Ph:(063) 65 3410.

URGENTLY WANTED: for Swan Cymrot test Valve tube 6JH8 (balanced modulator). VK2AFL. Ph:(02) 467 9157.

VALVES: Two 3-500Z valves. Price & condition to VK2DNA, QTHR.

WANTED - VIC

ANY "RARE" RECORDINGS: of amateur radio contacts for Volume 2 of "The Sounds of Amateur Radio". We are particularly interested in recordings of contacts on Bands not now available to Australian amateurs, eg 112, 288 MHz, etc. We are also looking for recordings of unusual contacts, eg from balloons, Aircraft, Submarines, etc. Any recording format can be handled from cylinders to CD. In the first instance please write to: Peter Wolfenden VK3KAU, c/o Federal Office, PO Box 300, Caulfield South, Vic. 3182. Please do not send recordings. Copies of Volume 1 "The Sounds of Amateur Radio" are still available for \$7, plus post & packaging. Inquire at your Divisional Bookshop or the Federal Office.

DETAILS FROM CLUBS & GROUPS: about their formation & activities so that can be included in the Club Portrait series in AR magazine. Portraits already done on: NEB, NIE, GORG, NIE, FARG. Some brief details of contact names, plus phone number to Jim Union VK3PC. Ph:(03) 337 4903.

POWER PACK: for Icom IC8F-6, less batteries. Outside acceptance unimportant. Reply in writing to: VK3RM, c/o Eliza Lodge, 347 Nepean Highway, Frankston, Vic. 3199.

ROBO CLUB: wants reasonable cost solid state 8m FM tube (2) to complete repeater project to serve Melbourne area. Contact Kerry VK3KFC. Ph:(06) 96 3580.

WANTED - QLD

ANTENNA TUNING CAPACITORS: 200 pf single & dual section. Ceramic rotary switch 2-pole, 4-position. Ken VK4JPE, ex-VK4TFE, QTHR. Ph:(07) 22 4085.

URGENTLY REQUIRED: instruction manual & circuit diagram for Yaesu FTDX-2000 linear. Will pay for copying & expenses. VK4FPO. Ph:(07) 27 1442.

ORIGINAL 110V POWER TRANSFORMER: for a Hallicrafters tx, model HT32 Mark 1. VK4KCF, QTHR. Ph:(07) 284 7739.

WANTED - SA

INSTRUCTION MANUAL: or copy, or circuit diagram for Ten Tec 544 test. Will pay for any expense incurred. Ph:(08) 271 0627.

FOR SALE - NSW

EMAC AC1500B: new in vacuum pack. \$700. Socket to suit SK 500B & chimney SK 60B. \$400. Filament tranny included. Allan VK4ZQR, QTHR. Ph:(044) 71 1059.

HF SIGNAL GENERATOR: AWA type 2-R7231. 92.7 kHz to 31.4 MHz with instruction manual. Very heavy - very stable. \$250. No offers. Maurice VK2DFJ, QTHR. Ph:(03) 605 9127.

HY-GAIN TH5-DXX: 6 element beam. \$450. Peter VK2GCM, QTHR. Ph:(063) 25 4068 AX. 25 1843.

ICOM IC-740: FM module fitted. WARC bands. PS-15 supply, hand-mk, desk-scanning mk. All as new. Boxes & manuals. \$990. VK2BPO, QTHR. Ph:(03) 713 1831 AX or (02) 568 2055 BH.

ICOM IC-771A RX: fitted with FM, manuals, etc. Entrom ETP1 ATU, microwave modules 2m G4A6F & 6m converters. All mint condition. \$900. Ph:(049) 69 4281.

KENWOOD TS-530S: with VK8BCN CW filter fitted. Excellent condition in original packaging with manual. \$600. FT101E. AC & DC cords, mks. etc. Excellent condition. Still has plastic covering. \$425. VK2ALM, QTHR. Ph:(065) 52 4418 BH or (065) 53 5353 AH.

VZ-300/350 RTTY/CW INTERFACE: adjustable 45-99 baud. 170-850 Hz shift. 5-99 WPM CW. Paperwork includes instructions, circuit, PCB layout, PCB & parts list, plus free software. Send \$19.35 (\$19 + \$1.35 p&st) + good quality C10 case to Rudy VK2RM, 14 Ide Street, Charleston, NSW. 2230. Ph:(049) 43 7548.

YAESU FT-757QZ TCVR: with MH-10B hand scan mk. \$1100. FC-757AT auto antenna tuner \$375. Both as new. Completed with manuals & cartons. Ross VK2BDB, QTHR. Ph:(02) 524 3017.

FOR SALE - VIC

BENCHER PADDLE: in unopened carton. Never used. Suitable to requirements. \$150. Ron Jones. Ph:(63) 670 3333 BH.

COMMODORE CBM 8128: with Commodore Tractor Printer 4022 2 Model C128D cassette, user guide, PC. CBM personal computer guide, RTTY/CW interface software & other software. \$450. Yaesu FT-107 with FC-107, FV-107 (incl. 16-8 mhz instruction manual, all in mint cond, in original cartons. \$850. Icom IC-27A 2m FM. \$135. Hans VK3DMS. Ph:(03) 555 9606, ext 17 BH.

CRYSTAL LOCKED AM HF BASE STATION: & mobile transceivers. Prices on application. Pat VK3ADN. Ph:(055) 96 2254.

FT-200 HF TCVR: with matching power supply & hand-book. \$200 or offer. VK3AQO, QTHR. Ph:(03) 458 444.

D2-5208 HF TCVR: \$500. AT-200 antenna tuner \$175. DO-6 digital display \$150. Remote VFO \$20 \$175. Swins Send 10m \$100. Swins quad 15m. \$300. SP-520 external speaker. \$80. MC-50 & MC-35 mics \$100. 6m lattice tower with chimney strap & base \$150. Dismantled 7000W rotor H40 \$250. Siemens teletype \$50. Or any others. Rob VK3VOS, QTHR. Ph:(03) 368 3310.

PRINTERS: Honeywell 5X7 DMI 15 in Tractor FV 1200 BD RS322. GC. December 5X7 DMI 80 inch tractor FV 300 BD RS322. Stand. GC. Both with toner loaded. Best offers. Keith VK3AFI, QTHR. Ph:(052) 21 3559.

SHACK CONTENTS: Yaesu FTDX-401 tcvr, spare valves, Kenwood 9650DS tx, SWR meter, electronic components. \$500. Offer. Tony VK3DMS. Ph:(03) 725 8071.

TET HB-4430D: 4-band antenna, 4 element Yagi, has been strengthened as per ARJ article. Good condition. \$480. Peter VK3QJ, QTHR. Ph:(03) 29 6398 AH.

TRANSMITTING VALVES: all new in original cartons. 2 X 811A, 2 X 805, 4 X 807, 1 X 810, 4 X 802S, 2 X Jumbo Sockets for 805, 2 X used 805. The lot for \$125. Will not separate. Peter VK3AFI, QTHR. Ph:(03) 836 7458.

YAESU FRG8600: VHF/UHF communications receiver. 10 months warranty. Complete with service manual. Mint condition. \$1080. Rodney VK3US, QTHR. Ph:(057) 62 1454 after 7pm.

YAESU MUSEN ANTENNA TUNER FC-707: with Mobile Mounting Bracket. \$200 ONO. Yaesu MUSEN VFO FV-107. \$60 ONO. All phone calls returned. John VK3XC, QTHR. Ph:(03) 744 2508.

YOKOHAMA ELECTRIC: 0-200V 10A variac type adjustable auto-transformer. \$100. Yaesu FT-2000B linear amplifier. 80-10 metres with swp 5728/160 to triodes in class B grounded grid configuration. What offers? VK3HC, QTHR. Ph:(03) 52 1908.

FOR SALE - QLD

AMATEUR RECEIVER: FRDX-400 160-10 with 2m & 6m modules plus CB band. 4 mhz filters, pre-selector tuning, squelch & rejection tuning. Includes matching speaker. \$150 ONO. Ph:(07) 369 1708.

COMPLETE AMATEUR RADIO STATION: inc VK4BP. Main equipment includes Drake SP7-4 tx (1971), Drake T-4XC tx (1973), Yaesu Linear Amplifier, Katsuni Electronic meter, Diava Speech Processor, Kenwood Dummy Load, & Oker SWR/Power Meter. Also included is a 75' AC Driven tower with a Hiram Morseman Antenna. A rotor system currently assembled to 80' & to be removed by purchaser. Many other items are also included. Would prefer to sell as a complete package for \$2000. Contact Mark Littleby. Ph: 377 9541 BH or 379 1992 AH.

KENWOOD TS-820 TCVR: very good condition. No mods, manuals mks & leads. \$470 ONO. VK4WR, QTHR. Ph:(07) 41 1316.

PHILIPS 628 MK 11: Currently working on 2m. Has remote control band & provision for 10 channels. Ideal start for a repeater. Would consider a swap for another 2m rig. Richard Burden, VK4BP. Ph:(07) 63 2871.

SWAN SW-240: complete with power supply, manual & circuit diagrams for both units. Ex-deceased estate. \$240 ONO. VK4FPO. Ph:(07) 27 1442.

FOR SALE - TAS

COMMUNICATIONS RECEIVER: Yaesu FRG-8800. Latest model, only 4 months old. This is the full coverage version, not limited to 2-30 MHz. New condition, with original packing & manual. Being sold due to purchase of IC-735 tcvr which has its own general coverage rx. Current new price for FRG-8800 full coverage model is \$1250, asking \$950 for this one. Also have FRV-8800 VHF converter, FR17700 antenna couple & FRF-2550 computer interface to suit by negotiation. Icom IC-730 HF tcvr. A new condition, with original packing & manual, not replaced by latest IC-735. Very small, good for base, portable, or mobile use. A really lovely rig to operate; has a particularly not receiver with a mechanical filter. Tx 100W output, internally switchable to 50W for novice use. Comes with optional I/O ports to interfaces & Yaesu noise-cancelling mks. Asking \$750. Tom VK7TMM, QTHR. Ph:(002) 39 1391.

ICOM IC-480A UHF MULTI-MODE TCVR: New idea/HF repeaters & satellite operations. \$700. Yaesu FV-101DM scanning ext VFO. New, suits FT-1012D MK3. \$185. VK7AN, QTHR. Ph:(003) 31 7914.

Advertiser's Index

ANDREWS COMMUNICATIONS SYSTEMS	58
ATN ANTENNAS	54
AUSTRALIAN ELECTRONICS MONTHLY ..	1
DICK SMITH ELECTRONICS	19
ELECTRONICS TODAY INTERNATIONAL ..	49 & 38
EMTRONICS	43
GFS ELECTRONIC IMPORTS	43
IAN J TRUSCOTT'S ELECTRONIC WORLD ..	43
ICOM AUSTRALIA PTY LTD	32, 33 & 45
KENWOOD ELECTRONICS AUSTRALIA PTY LTD	4-11
LOCUS TECHNICAL	25
RF AEROSPACE	34 & 35
VANS ELECTRONICS	49
VAN'S ANTENNAS	49
VICSAT	25
WIA MAGPUBS	31
WIA (NSW DIVISION) NOVICE LICENCE ..	25 & 38
WILLIAM WILLIS & CO PTY LTD	59



SYDNEY — MELBOURNE — BRISBANE



\$99 CHRISTMAS BONUS

Yes this new from EMTRON — highly accurate CROSS-NEEDLE SWR & POWER Meter, model EP-200 worth \$99, comes ABSOLUTELY FREE with every KENWOOD or ICOM HF transceiver such as: TS-940S, TS440S, IC-735, IC-751



We offer BEST PRICES in Australia on all KENWOOD Products!!

EMTRON PRODUCTS:

ANTENNA TUNER - EAT 300A

The finest 300 watt ant. tuner on the market with cross needle swr/power meter, built-in dummy load and 6 pos. antenna switch. **\$329**

ANTENNA TUNER-EAT 300

Same as EAT-300A but with SWR antenna only and without dummy load and antenna switch. Only **\$209**

ETP-1 THE SWL DELIGHT!

This antenna tuner & low noise pre-amplifier for receivers designed with SWL in mind, will boost weak signals and match your antenna to the receiver for best performance. **\$159**

EAA 130 ACTIVE ANTENNA

For SWL. Out perform all other antennas except beams, ideal for any space small or large. **\$199**

NEW EMB-2 BEST NOISE BRIDGE

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